



1

SEQUENCE LISTING

<110> HAMILTON, STEPHEN

<120> EXPRESSION OF CLASS 2 MANNOSIDASE AND CLASS III  
MANNOSIDASE IN LOWER EUKARYOTIC CELLS

<130> GFI/107

<140> 10/616,082

<141> 2003-07-08

<150> 10/371,877

<151> 2003-02-20

<150> 09/892,591

<151> 2001-06-27

<150> 60/214,358

<151> 2000-06-28

<150> 60/215,638

<151> 2000-06-30

<150> 60/279,997

<151> 2001-03-30

<150> PCT/US02/41510

<151> 2002-12-24

<150> 60/344,169

<151> 2001-12-27

<160> 119

<170> PatentIn Ver. 3.2

<210> 1

<211> 1968

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (1)..(1965)

<400> 1

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Val Phe Ser Ala Phe Ile Thr Leu Cys Phe Gly Ala Ile Phe Phe Leu	
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Pro Asp Ser Ser Lys Leu Leu Ser Gly Val Leu Phe His Ser Asn Pro	
65 70 75 80	
gcc ttg cag ccg ccg gcg gag cac aag ccc ggg ctc ggg gcg cgt gcg	288
Ala Leu Gln Pro Pro Ala Glu His Lys Pro Gly Leu Gly Ala Arg Ala	
85 90 95	
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Glu Asp Ala Ala Glu Gly Arg Val Arg His Arg Glu Glu Gly Ala Pro	
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Asn His Glu Arg Ala Leu Arg Glu Ala Lys Glu Thr Leu Gln Lys Leu	
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Pro Glu Glu Ile Gln Arg Asp Ile Leu Leu Glu Lys Glu Lys Val Ala	
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Gln Asp Gln Leu Arg Asp Lys Asp Leu Phe Arg Gly Leu Pro Lys Val	
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 Ser Gly Pro Ala Ala Phe Arg Leu Thr Glu Lys Phe Val Leu Leu Leu  
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 Pro Asp Ser Ser Lys Leu Leu Ser Gly Val Leu Phe His Ser Asn Pro  
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 Gly Asp Pro Gly Ala Gly Leu Glu Asp Asn Leu Ala Arg Ile Arg Glu  
           115                  120                  125  
 Asn His Glu Arg Ala Leu Arg Glu Ala Lys Glu Thr Leu Gln Lys Leu  
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 Pro Glu Glu Ile Gln Arg Asp Ile Leu Leu Glu Lys Glu Lys Val Ala  
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 Thr Ile Arg Glu Lys Arg Ala Lys Ile Lys Glu Met Met Thr His Ala  
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 Trp Asn Asn Tyr Lys Arg Tyr Ala Trp Gly Leu Asn Glu Leu Lys Pro  
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 Ile Ser Lys Glu Gly His Ser Ser Ser Leu Phe Gly Asn Ile Lys Gly  
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 Ala Thr Ile Val Asp Ala Leu Asp Thr Leu Phe Ile Met Gly Met Lys  
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 Asn Val Asn Ala Glu Val Ser Val Phe Glu Val Asn Ile Arg Phe Val  
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 Gly Gly Leu Leu Ser Ala Tyr Tyr Leu Ser Gly Glu Glu Ile Phe Arg  
 290 295 300  
 Lys Lys Ala Val Glu Leu Gly Val Lys Leu Leu Pro Ala Phe His Thr  
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 Pro Ser Gly Ile Pro Trp Ala Leu Leu Asn Met Lys Ser Gly Ile Gly  
 325 330 335  
 Arg Asn Trp Pro Trp Ala Ser Gly Gly Ser Ser Ile Leu Ala Glu Phe  
 340 345 350  
 Gly Thr Leu His Leu Glu Phe Met His Leu Ser His Leu Ser Gly Asp  
 355 360 365  
 Pro Val Phe Ala Glu Lys Val Met Lys Ile Arg Thr Val Leu Asn Lys  
 370 375 380  
 Leu Asp Lys Pro Glu Gly Leu Tyr Pro Asn Tyr Leu Asn Pro Ser Ser  
 385 390 395 400  
 Gly Gln Trp Gly Gln His His Val Ser Val Gly Gly Leu Gly Asp Ser  
 405 410 415  
 Phe Tyr Glu Tyr Leu Leu Lys Ala Trp Leu Met Ser Asp Lys Thr Asp  
 420 425 430  
 Leu Glu Ala Lys Lys Met Tyr Phe Asp Ala Val Gln Ala Ile Glu Thr  
 435 440 445  
 His Leu Ile Arg Lys Ser Ser Gly Gly Leu Thr Tyr Ile Ala Glu Trp  
 450 455 460  
 Lys Gly Gly Leu Leu Glu His Lys Met Gly His Leu Thr Cys Phe Ala  
 465 470 475 480  
 Gly Gly Met Phe Ala Leu Gly Ala Asp Gly Ala Pro Glu Ala Arg Ala  
 485 490 495  
 Gln His Tyr Leu Glu Leu Gly Ala Glu Ile Ala Arg Thr Cys His Glu  
 500 505 510  
 Ser Tyr Asn Arg Thr Tyr Val Lys Leu Gly Pro Glu Ala Phe Arg Phe  
 515 520 525  
 Asp Gly Gly Val Glu Ala Ile Ala Thr Arg Gln Asn Glu Lys Tyr Tyr  
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Ile Leu Arg Pro Glu Val Ile Glu Thr Tyr Met Tyr Met Trp Arg Leu  
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Thr His Asp Pro Lys Tyr Arg Thr Trp Ala Trp Glu Ala Val Glu Ala  
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Leu Glu Ser His Cys Arg Val Asn Gly Gly Tyr Ser Gly Leu Arg Asp  
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Val Tyr Ile Ala Arg Glu Ser Tyr Asp Asp Val Gln Gln Ser Phe Phe  
 595 600 605

Leu Ala Glu Thr Leu Lys Tyr Leu Tyr Leu Ile Phe Ser Asp Asp Asp  
 610 615 620

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 <223> a, c, g, t, other or unknown

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                   20                  25                  30  
 Phe Met Asn Val Thr Pro Thr Ala Ser Trp Ala Ile Asp Pro Phe Gly  
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<210> 11  
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&lt;210&gt; 15

&lt;211&gt; 66

&lt;212&gt; PRT

&lt;213&gt; Unknown Organism

&lt;220&gt;

<223> Description of Unknown Organism: Class 2  
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Ile Gln Asp Ala Asn Thr Arg Leu Thr Leu Leu Thr Gly Gln Pro Leu  
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Gly Val Ser Ser Leu Ala Ser Gly Gln Leu Glu Val Met Leu Asp Arg  
35 40 45

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Asn Lys

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&lt;210&gt; 16

&lt;211&gt; 27

&lt;212&gt; DNA

&lt;213&gt; Kluyveromyces lactis

&lt;400&gt; 16

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&lt;210&gt; 17

&lt;211&gt; 27

&lt;212&gt; DNA

&lt;213&gt; Kluyveromyces lactis

&lt;400&gt; 17

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27

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Gly Gly Thr Gly Gly Trp Gly Gln Ser Leu Leu Pro Thr Ala Leu Ser	
20 25 30	
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Lys Ser Lys Leu Ala Ile Asn Arg Lys Pro Arg Lys Arg Thr Leu Val	
35 40 45	
gtc aat ttc atc ttc gcc aac ttc ttc gtc atc gca ctc acc gtc tca	192
Val Asn Phe Ile Phe Ala Asn Phe Phe Val Ile Ala Leu Thr Val Ser	
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Leu Leu Phe Phe Leu Leu Thr Leu Phe His Phe Gly Val Pro Gly Pro	
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Ile Ser Ser Arg Phe Leu Thr Ser Arg Ser Asn Arg Ile Val Lys Pro	
85 90 95	
cgg aag aat att aat cgc cga ccc tta aac gat tcc aat tca ggc gcc	336
Arg Lys Asn Ile Asn Arg Arg Pro Leu Asn Asp Ser Asn Ser Gly Ala	
100 105 110	
gtc gtt gat atc aca act aaa gat cta tac gat agg att gag ttt ctt	384
Val Val Asp Ile Thr Thr Lys Asp Leu Tyr Asp Arg Ile Glu Phe Leu	
115 120 125	
gat aca gat ggt ggt cca tgg aaa caa ggt tgg aga gtt acg tat aaa	432
Asp Thr Asp Gly Gly Pro Trp Lys Gln Gly Trp Arg Val Thr Tyr Lys	
130 135 140	
gac gat gag tgg gag aaa gag aag ctc aaa atc ttc gtt gtt cct cat	480
Asp Asp Glu Trp Glu Lys Glu Lys Leu Lys Ile Phe Val Val Pro His	
145 150 155 160	
tct cat aac gat cct ggt tgg aaa ttg act gta gag gag tat tat cag	528
Ser His Asn Asp Pro Gly Trp Lys Leu Thr Val Glu Glu Tyr Tyr Gln	
165 170 175	
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Arg Gln Ser Arg His Ile Leu Asp Thr Ile Val Glu Thr Leu Ser Lys	
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Asp Ser Arg Arg Lys Phe Ile Trp Glu Glu Met Ser Tyr Leu Glu Arg	
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Trp Trp Arg Asp Ala Ser Pro Asn Lys Gln Glu Ala Leu Thr Lys Leu	
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Val Lys Asp Gly Gln Leu Glu Ile Val Gly Gly Gly Trp Val Met Asn	
225 230 235 240	
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Asp Glu Ala Asn Ser His Tyr Phe Ala Ile Ile Glu Gln Ile Ala Glu	
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Gly Asn Met Trp Leu Asn Asp Thr Ile Gly Val Ile Pro Lys Asn Ser	
260 265 270	
tgg gct ata gat ccc ttt ggc tat tca tca acc atg gct tat ctt ctc	864
Trp Ala Ile Asp Pro Phe Gly Tyr Ser Ser Thr Met Ala Tyr Leu Leu	
275 280 285	
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Arg Arg Met Gly Phe Glu Asn Met Leu Ile Gln Arg Thr His Tyr Glu	
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Leu Lys Lys Asp Leu Ala Gln His Lys Asn Leu Glu Tyr Ile Trp Arg	
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Gln Ser Trp Asp Ala Met Glu Thr Thr Asp Ile Phe Val His Met Met	
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Leu Cys Pro Trp Gly Lys His Pro Val Glu Thr Thr Leu Glu Asn Val	
370 375 380	
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Gln Glu Arg Ala Leu Lys Leu Leu Asp Gln Tyr Arg Lys Lys Ser Thr	
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Leu Tyr Arg Thr Asn Thr Leu Leu Ile Pro Leu Gly Asp Asp Phe Arg	
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Tyr Ile Ser Ile Asp Glu Ala Glu Ala Gln Phe Arg Asn Tyr Gln Met	
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Leu Phe Asp His Ile Asn Ser Asn Pro Ser Leu Asn Ala Glu Ala Lys	
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Val Asp Arg Val Leu Glu His Thr Leu Arg Gly Ala Glu Ile Met Met	
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Ser Phe Leu Leu Gly Tyr Cys His Arg Ile Gln Cys Glu Lys Phe Pro	
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aca agt ttt acg tat aag ttg act gct gca aga aga aat ctg gct ctt	1680
Thr Ser Phe Thr Tyr Lys Leu Thr Ala Ala Arg Arg Asn Leu Ala Leu	
545 550 555 560	
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Phe Gln His His Asp Gly Val Thr Gly Thr Ala Lys Asp Tyr Val Val	
565 570 575	
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Gln Asp Tyr Gly Thr Arg Met His Thr Ser Leu Gln Asp Leu Gln Ile	
580 585 590	
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Phe Met Ser Lys Ala Ile Glu Val Leu Leu Gly Ile Arg His Glu Lys	
595 600 605	

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gag gag gtg gtg acg gtt gtt gtt aac cgc gct gaa atc tcg gtt ttg Glu Glu Val Val Thr Val Val Val Asn Arg Ala Glu Ile Ser Val Leu 660 665 670	2016
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cat gac gat acc aaa cta ttc acc ggc aga cat cgc ctt tac tgg aaa His Asp Asp Thr Lys Leu Phe Thr Gly Arg His Arg Leu Tyr Trp Lys 690 695 700	2112
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cct gat gga cat gta gtc acc tct gag ggt ctg ctg gtt caa gaa gtc Pro Asp Gly His Val Val Thr Ser Glu Gly Leu Leu Val Gln Glu Val 820 825 830	2496
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cgg ttg gtt cgt gat gac gga cgg ggt cta ggg caa ggt gtg atg gat Arg Leu Val Arg Asp Asp Gly Arg Gly Leu Gly Gln Gly Val Met Asp 965 970 975	2928
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 Thr Val Ser Leu Tyr Leu Tyr Asn Gly Ile Glu Thr Gly Ala Glu Ala  
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 35 40 45

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 65 70 75 80

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gca cca gtt cca gtt cga gga aat cgt ggt gaa atg gct cat att cat 336  
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 100 105 110

caa gta aag caa cat atc aag cca act cca tcg atg aaa gat gtt tgt 384  
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 195 200 205

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225 230 235 240	
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Asp Glu Ile Lys Lys Lys Val Lys Gly Tyr Leu Glu Ala Gly Lys Phe	
245 250 255	
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Glu Ile Val Thr Gly Gly Trp Val Met Thr Asp Glu Ala Asn Ala His	
260 265 270	
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Tyr His Ser Met Ile Thr Glu Leu Phe Glu Gly His Glu Trp Ile Gln	
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Asn His Leu Gly Lys Ser Ala Ile Pro Gln Ser His Trp Ser Ile Asp	
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Tyr Asp Ile Pro His Thr Cys Gly Pro Glu Pro Ser Val Cys Cys Gln	
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Lys Met Ile Asp Ala Leu Asn Ala Cys Glu Asp Ile Leu Ser Glu Ala	
595 600 605	
ctt gtt gta ttg ctg gga att gat tca acg aat aag atg cag atg gat	1872
Leu Val Val Leu Leu Gly Ile Asp Ser Thr Asn Lys Met Gln Met Asp	
610 615 620	

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gat cct cca att aaa aaa caa caa gtt tct ccg gtt att gca tat gat Asp Pro Pro Ile Lys Lys Gln Gln Val Ser Pro Val Ile Ala Tyr Asp 675 680 685	2064
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act gtg aaa aac gac aaa gtt gaa gct gaa ttt gat gga gaa aat gga Thr Val Lys Asn Asp Lys Val Glu Ala Glu Phe Asp Gly Glu Asn Gly 755 760 765	2304
atg att aaa aga gct acc agt ctt gtt gat gat aaa cca att gat ttg Met Ile Lys Arg Ala Thr Ser Leu Val Asp Asp Lys Pro Ile Asp Leu 770 775 780	2352
aat tct cac ttt att cat tat gga gca cgg aag tca aag aga aag ttc Asn Ser His Phe Ile His Tyr Gly Ala Arg Lys Ser Lys Arg Lys Phe 785 790 795 800	2400
gca aat gga aat gaa gac aac ccg gct ggc gca tac ctg ttc ctt ccc Ala Asn Gly Asn Glu Asp Asn Pro Ala Gly Ala Tyr Leu Phe Leu Pro 805 810 815	2448
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cga aca gtt gca cat ttc cgt att gtt att gag ccg atg tct tca tcg Arg Thr Val Ala His Phe Arg Ile Val Ile Glu Pro Met Ser Ser Ser 980 985 990	2976
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cat ctc gct acg tgg tct ctt cat tat cct ctt gtc aaa atg att gga His Leu Ala Thr Trp Ser Leu His Tyr Pro Leu Val Lys Met Ile Gly 1010 1015 1020	3072
gat gca aca cca aaa tct att tct tcg aaa aat gtg gaa caa gag ctg Asp Ala Thr Pro Lys Ser Ile Ser Ser Lys Asn Val Glu Gln Glu Leu 1025 1030 1035 1040	3120

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 Gly Ser Ile Trp Phe Met Ile Gly Gln Leu Asp Thr Pro Asn Ser Pro  
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 cag aaa gtc aaa ttc tcg gaa ggc agt gaa aat gac caa gtt cga acc 144  
 Gln Lys Val Lys Phe Ser Glu Gly Ser Glu Asn Asp Gln Val Arg Thr  
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aaa aat gtt cat gtg cct atg cag cgc gga gaa ata aga aac aac gtc Lys Asn Val His Val Pro Met Gln Arg Gly Glu Ile Arg Asn Asn Val 85 90 95	288
aat aaa cct gtg cta cca ctt ata atg ccc aag caa ttt gcg aat gac Asn Lys Pro Val Leu Pro Leu Ile Met Pro Lys Gln Phe Ala Asn Asp 100 105 110	336
tcc cga atg agt gac acg tgt cct gtg ctc tcg tac tcc ggt ggc aag Ser Arg Met Ser Asp Thr Cys Pro Val Leu Ser Tyr Ser Gly Gly Lys 115 120 125	384
tcc gat gtt aac atg att aac gtg tat gat cat ctt cca ttt gat gat Ser Asp Val Asn Met Ile Asn Val Tyr Asp His Leu Pro Phe Asp Asp 130 135 140	432
cca gat ggt gga gtt tgg aaa caa ggt tgg gac atc cag aca tcg gat Pro Asp Gly Gly Val Trp Lys Gln Gly Trp Asp Ile Gln Thr Ser Asp 145 150 155 160	480
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caa aca caa cat att ctc aat aat att gtg gat gct ttg agt caa gac Gln Thr Gln His Ile Leu Asn Asn Ile Val Asp Ala Leu Ser Gln Asp 195 200 205	624
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gcg att gat ccc ttt ggt cac acc ccc acc atg gct tat ata ctg aaa Ala Ile Asp Pro Phe Gly His Thr Pro Thr Met Ala Tyr Ile Leu Lys 290 295 300	912
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Glu	Lys	Leu	Pro	Ala	Leu	Ser	Gly	Asp	Phe	Phe	Thr	Tyr	Ala	Asp	Arg	
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gaa	gat	cac	tat	tgg	agt	ggt	tac	tac	act	tca	cgg	cct	tac	cac	aaa	1536
Glu	Asp	His	Tyr	Trp	Ser	Gly	Tyr	Tyr	Thr	Ser	Arg	Pro	Tyr	His	Lys	
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Met	Gln	Glu	Arg	Val	Leu	Glu	Ser	His	Leu	Arg	Gly	Ala	Glu	Met	Leu	
		515					520					525				
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Phe	Ala	Leu	Ser	Trp	Pro	Lys	Ile	Gln	Trp	Thr	Gly	Leu	Gly	Glu	Thr	
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Phe	Ser	His	Glu	Leu	Tyr	Pro	Leu	Leu	Val	Gln	Ala	Arg	Gln	Asn	Leu	
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Gly	Leu	Phe	Gln	His	His	Asp	Gly	Ile	Thr	Gly	Thr	Ala	Lys	Asp	His	
				565				570						575		
ggt	ggt	ggt	gat	tac	ggg	aat	aaa	ctc	atg	aag	agt	ggt	atg	gat	gca	1776
Val	Val	Val	Asp	Tyr	Gly	Asn	Lys	Leu	Met	Lys	Ser	Val	Met	Asp	Ala	
			580					585					590			
aag	aag	gta	att	tca	tac	agt	gcc	caa	ggt	ctg	ttg	caa	gaa	atg	atc	1824
Lys	Lys	Val	Ile	Ser	Tyr	Ser	Ala	Gln	Val	Leu	Leu	Gln	Glu	Met	Ile	
		595					600					605				
acg	ttt	gat	cca	aat	acc	atg	gta	ctt	aac	tat	gat	gag	gtg	tat	caa	1872
Thr	Phe	Asp	Pro	Asn	Thr	Met	Val	Leu	Asn	Tyr	Asp	Glu	Val	Tyr	Gln	
	610					615					620					
gct	cag	aac	caa	caa	cct	gcg	cct	gtg	ggt	ggt	aag	cta	cca	acg	aag	1920
Ala	Gln	Asn	Gln	Gln	Pro	Ala	Pro	Val	Val	Val	Lys	Leu	Pro	Thr	Lys	
625					630					635					640	
aat	gaa	gaa	gcg	cgg	aaa	gtc	ggt	ctc	tac	aac	tct	ctg	gat	tac	gac	1968
Asn	Glu	Glu	Ala	Arg	Lys	Val	Val	Leu	Tyr	Asn	Ser	Leu	Asp	Tyr	Asp	
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aga	act	ggt	gtc	gtg	cgt	cta	att	ggt	acg	tca	ccc	gac	gtg	ggt	gtg	2016
Arg	Thr	Gly	Val	Val	Arg	Leu	Ile	Val	Thr	Ser	Pro	Asp	Val	Val	Val	
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Asn Asp Val Ala Asp Thr Thr His Ser Thr Val Lys Phe Ile Asn Pro	
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785 790 795 800	
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Arg Gly Pro Val Met Ser Thr Val His Val Leu Leu Pro Asn Val Leu	
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850 855 860	
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Phe Phe Thr Asp Leu Asn Gly Phe Gln Ile Gln Pro Arg Thr Thr Tyr	
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Trp Asn Ile Lys Tyr Asp Pro Leu Lys Tyr Asn Ala His His Lys Leu	
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Lys Val Phe Val Val Pro His Ser His Asn Asp Pro Gly Trp Ile Gln	
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Glu Ile Ser Tyr Phe Ala Arg Phe Tyr His Asp Leu Gly Glu Asn Lys	
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Pro Thr Met Pro Tyr Ile Leu Gln Lys Ser Gly Phe Lys Asn Met Leu	
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Ile Gln Arg Thr His Tyr Ser Val Lys Lys Glu Leu Ala Gln Gln Arg	
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Glu His Thr Ser Tyr Ala Ser Asn Leu Leu Leu Arg Lys Asn Pro Thr	
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Arg Glu Ile Ser Leu Arg Val Gly Asn Gly Pro Thr Leu Ala Phe Ser	
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Glu Gln Gly Leu Leu Lys Ser Ile Gln Leu Thr Gln Asp Ser Pro His	
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Val Val Ile Phe Ser Leu Tyr Leu Met Leu Asp Arg Gly His Leu Asp	
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Tyr Pro Arg Asn Pro Arg Arg Glu Gly Ser Phe Pro Gln Gly Gln Leu	
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Ser Met Leu Gln Glu Lys Ile Asp His Leu Glu Arg Leu Leu Ala Glu	
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Asn Asn Glu Ile Ile Ser Asn Ile Arg Asp Ser Val Ile Asn Leu Ser	
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Glu Ser Val Glu Asp Gly Pro Lys Ser Ser Gln Ser Asn Phe Ser Gln	
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Gly Ala Gly Ser His Leu Leu Pro Ser Gln Leu Ser Leu Ser Val Asp	
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Thr Ala Asp Cys Leu Phe Ala Ser Gln Ser Gly Ser His Asn Ser Asp	
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Val Gln Met Leu Asp Val Tyr Ser Leu Ile Ser Phe Asp Asn Pro Asp	
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Gly Gly Val Trp Lys Gln Gly Phe Asp Ile Thr Tyr Glu Ser Asn Glu	
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Trp Asp Thr Glu Pro Leu Gln Val Phe Val Val Pro His Ser His Asn	
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Asp Pro Gly Trp Leu Lys Thr Phe Asn Asp Tyr Phe Arg Asp Lys Thr	
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Thr Pro His Tyr Phe Ala Leu Ile Asp Gln Leu Ile Glu Gly His Gln	
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Trp Leu Glu Asn Asn Ile Gly Val Lys Pro Arg Ser Gly Trp Ala Ile	
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Asp Pro Phe Gly His Ser Pro Thr Met Ala Tyr Leu Leu Asn Arg Ala	
290 295 300	
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Gly Leu Ser His Met Leu Ile Gln Arg Val His Tyr Ala Val Lys Lys	
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His Phe Ala Leu His Lys Thr Leu Glu Phe Phe Trp Arg Gln Asn Trp	
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Asp Leu Gly Ser Val Thr Asp Ile Leu Cys His Met Met Pro Phe Tyr	
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Ser Tyr Asp Ile Pro His Thr Cys Gly Pro Asp Pro Lys Ile Cys Cys	
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385 390 395 400	

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Pro	Gln	Arg	Ala	Pro	Arg	Phe	Val	Val	Val	Phe	Asn	Pro	Leu	Glu	Gln	
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Glu	Arg	Leu	Ser	Val	Val	Ser	Leu	Leu	Val	Asn	Ser	Pro	Arg	Val	Arg	
			755				760					765				
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Val	Leu	Ser	Glu	Glu	Gly	Gln	Pro	Leu	Ser	Val	Gln	Ile	Ser	Val	Gln	
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tgg	agc	tcc	gcc	acc	aac	atg	gtc	ccc	gat	gtc	tac	cag	gtg	tca	gtg	2400
Trp	Ser	Ser	Ala	Thr	Asn	Met	Val	Pro	Asp	Val	Tyr	Gln	Val	Ser	Val	
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cct	gtc	cgc	ctg	cca	gcc	ctg	ggc	ctg	ggt	gtg	ctg	cag	ctg	cag	cca	2448
Pro	Val	Arg	Leu	Pro	Ala	Leu	Gly	Leu	Gly	Val	Leu	Gln	Leu	Gln	Pro	
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Asp	Leu	Asp	Gly	Pro	Tyr	Thr	Leu	Gln	Ser	Ser	Val	His	Val	Tyr	Leu	
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Asn	Gly	Val	Lys	Leu	Ser	Val	Ser	Arg	Gln	Thr	Thr	Phe	Pro	Leu	Arg	
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Val	Val	Asp	Ser	Gly	Thr	Ser	Asp	Phe	Ala	Ile	Ser	Asn	Arg	Tyr	Met	
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cag	gtc	tgg	ttc	tcc	ggc	ctt	act	ggg	ctt	ctc	aag	agc	gtc	cga	cgt	2640
Gln	Val	Trp	Phe	Ser	Gly	Leu	Thr	Gly	Leu	Leu	Lys	Ser	Val	Arg	Arg	
865				870						875					880	
gtg	gac	gaa	gag	cag	gaa	cag	cag	gtg	gac	atg	aag	ctc	ttc	gtc	tat	2688
Val	Asp	Glu	Glu	Gln	Glu	Gln	Gln	Val	Asp	Met	Lys	Leu	Phe	Val	Tyr	
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gga	acc	cgc	aca	tcc	aag	gat	aag	agt	ggc	gcc	tac	ctc	ttc	ctg	cct	2736
Gly	Thr	Arg	Thr	Ser	Lys	Asp	Lys	Ser	Gly	Ala	Tyr	Leu	Phe	Leu	Pro	
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Leu Pro Val Ala Lys Arg Glu Ser Thr Ser Pro Thr Leu His Ser Phe	
1125 1130 1135	
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His Pro Leu Ala Ser Pro Leu Pro Cys Asp Phe His Leu Leu Asn Leu	
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Arg Met Leu Pro Ala Glu Val Ser Val Pro Val Arg Ala Asn Pro His	
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His Gln Ala Glu Pro Cys Leu Leu Gly Arg His Ala Ala Asp Pro Pro	
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Lys Asn Leu Gly Phe Asn Cys Thr Thr Ser Gln Gly Lys Leu Ala Leu	
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Gly Ser Leu Phe His Gly Leu Asp Val Leu Phe Leu Gln Pro Thr Ser	
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Leu Thr Leu Leu Tyr Pro Leu Ala Ser Pro Ser Asn Ser Thr Asp Ile	
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 Val Ala Val Phe Ser Leu Tyr Leu Met Leu Asp Arg Val Gln His Asp  
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 Pro Thr Arg His Gln Asn Gly Gly Asn Phe Pro Arg Ser Gln Ile Ser  
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 Val Leu Gln Asn Arg Ile Glu Gln Leu Glu Gln Leu Leu Glu Glu Asn  
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 His Glu Ile Ile Ser His Ile Lys Asp Ser Val Leu Glu Leu Thr Ala  
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 85 90 95

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 Ser Trp Val Val Pro Pro Glu Pro Arg Pro Ser Phe Phe Ser Ile Ser  
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 Pro Gln Asp Cys Gln Phe Ala Leu Gly Gly Arg Gly Gln Lys Pro Glu  
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 Leu Gln Met Leu Thr Val Ser Glu Glu Leu Pro Phe Asp Asn Val Asp  
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 Asp Pro Gly Trp Ile Lys Thr Phe Asp Lys Tyr Tyr Thr Glu Gln Thr  
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 Gln His Ile Leu Asn Ser Met Val Ser Lys Leu Gln Glu Asp Pro Arg  
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980 985 990	
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 Ala Leu Arg Phe Ser Ser Ser Val Asn Ser Gly Asp Glu Phe Phe Thr  
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 Asp Leu Asn Gly Met Gln Met Ile Lys Arg Arg Arg Gln Thr Lys Leu  
 900 905 910  
 Pro Thr Gln Ala Asn Phe Tyr Pro Met Ser Ala Gly Val Tyr Ile Glu  
 915 920 925  
 Asp Asp Thr Thr Arg Met Ser Ile His Ser Ala Gln Ala Leu Gly Val  
 930 935 940  
 Ser Ser Leu Ser Ser Gly Gln Ile Glu Ile Met Leu Asp Arg Arg Leu  
 945 950 955 960  
 Ser Ser Asp Asp Asn Arg Gly Leu Gln Gln Gly Val Arg Asp Asn Lys  
 965 970 975  
 Arg Thr Val Ala His Phe Arg Ile Val Ile Glu Pro Met Ser Ser Ser  
 980 985 990  
 Ser Gly Asn Lys Lys Glu Glu Arg Val Gly Phe His Ser His Val Gly  
 995 1000 1005  
 His Leu Ala Thr Trp Ser Leu His Tyr Pro Leu Val Lys Met Ile Gly  
 1010 1015 1020  
 Asp Ala Thr Pro Lys Ser Ile Ser Ser Lys Asn Val Glu Gln Glu Leu  
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 Asn Cys Asp Leu His Leu Val Thr Phe Arg Thr Leu Ala Ser Pro Thr  
 1045 1050 1055

Thr Tyr Glu Ala Asn Glu Arg Ser Thr Ala Ala Glu Lys Lys Ala Ala  
 1060 1065 1070

Met Val Met His Arg Val Val Pro Asp Cys Arg Ser Arg Leu Thr Leu  
 1075 1080 1085

Pro Asp Thr Ser Cys Leu Ala Thr Gly Leu Glu Ile Glu Pro Leu Lys  
 1090 1095 1100

Leu Ile Ser Thr Leu Lys Ser Ala Lys Lys Thr Ser Leu Thr Asn Leu  
 1105 1110 1115 1120

Tyr Glu Gly Asn Lys Ala Glu Gln Phe Arg Leu Gln Pro Asn Asp Ile  
 1125 1130 1135

Ser Ser Ile Leu Val Ser Phe  
 1140

<210> 93  
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 <212> PRT  
 <213> Rattus norvegicus

<400> 93  
 Met Ala Cys Ile Gly Gly Ala Gln Gly Gln Arg Gln Ala Val Glu Lys  
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Glu Pro Ser His Gln Gly Tyr Pro Trp Lys Pro Met Thr Asn Gly Ser  
 20 25 30

Cys Ser Glu Leu Ala Leu Leu Ser Lys Thr Arg Met Tyr Cys His Gln  
 35 40 45

Gly Cys Val Arg Pro Pro Arg Thr Asp Val Lys Asn Phe Lys Thr Thr  
 50 55 60

Thr Asp Thr Gln Ser Val Pro Gly Val Ser Met Lys Leu Lys Lys Gln  
 65 70 75 80

Val Thr Val Cys Gly Ala Ala Ile Phe Cys Val Ala Val Phe Ser Leu  
 85 90 95

Tyr Leu Met Leu Asp Arg Val Gln His Asp Pro Ala Arg His Gln Asn  
 100 105 110

Gly Gly Asn Phe Pro Arg Ser Gln Ile Ser Val Leu Gln Asn Arg Ile  
 115 120 125

Glu Gln Leu Glu Gln Leu Leu Glu Glu Asn His Glu Ile Ile Ser His  
 130 135 140

Ile Lys Asp Ser Val Leu Glu Leu Thr Ala Asn Ala Glu Gly Pro Pro  
 145 150 155 160  
 Ala Leu Leu Pro Tyr His Thr Ala Asn Gly Ser Trp Ala Val Leu Pro  
 165 170 175  
 Glu Pro Arg Pro Ser Phe Phe Ser Val Ser Pro Glu Asp Cys Gln Phe  
 180 185 190  
 Ala Leu Gly Gly Arg Gly Gln Lys Pro Glu Leu Gln Met Leu Thr Val  
 195 200 205  
 Ser Glu Asp Leu Pro Phe Asp Asn Val Glu Gly Gly Val Trp Arg Gln  
 210 215 220  
 Gly Phe Asp Ile Ser Tyr Ser Pro Asn Asp Trp Asp Ala Glu Asp Leu  
 225 230 235 240  
 Gln Val Phe Val Val Pro His Ser His Asn Asp Pro Gly Glu Glu Pro  
 245 250 255  
 Ala Gly Pro Ser Arg Ser Val Gln Gly Gly Leu Ser Gly Asp Arg Arg  
 260 265 270  
 Trp Ile Lys Thr Phe Asp Lys Tyr Tyr Thr Glu Gln Thr Gln His Ile  
 275 280 285  
 Leu Asn Ser Met Val Ser Lys Leu Gln Glu Asp Pro Arg Arg Arg Phe  
 290 295 300  
 Leu Trp Ala Glu Val Ser Phe Phe Ala Lys Trp Trp Asp Asn Ile Ser  
 305 310 315 320  
 Ala Gln Lys Arg Ala Ala Val Arg Arg Leu Val Gly Asn Gly Gln Leu  
 325 330 335  
 Glu Ile Ala Thr Gly Gly Trp Val Met Pro Asp Glu Ala Asn Ser His  
 340 345 350  
 Tyr Phe Ala Leu Val Gly Gln Leu Ile Glu Gly Pro Pro Pro Val Arg  
 355 360 365  
 Arg Ala Val Asp Pro Phe Gly His Ser Ser Thr Met Pro Tyr Leu Leu  
 370 375 380  
 Arg Arg Ala Asn Leu Thr Ser Met Leu Ile Gln Arg Val His Tyr Ala  
 385 390 395 400  
 Ile Lys Lys His Phe Ala Ala Thr His Ser Leu Glu Phe Met Trp Arg  
 405 410 415  
 Gln Thr Trp Asp Ser Asp Ser Ser Thr Asp Ile Phe Cys His Met Met  
 420 425 430

Pro Phe Tyr Ser Tyr Asp Val Pro His Thr Cys Gly Pro Asp Pro Lys  
 435 440 445  
 Ile Cys Cys Gln Phe Asp Phe Lys Arg Leu Pro Gly Gly Arg Ile Asn  
 450 455 460  
 Cys Pro Trp Lys Val Pro Pro Arg Ala Ile Thr Glu Ala Asn Val Ala  
 465 470 475 480  
 Asp Arg Ala Ala Leu Leu Asp Gln Tyr Arg Lys Lys Ser Arg Leu  
 485 490 495  
 Phe Arg Ser Ser Val Leu Leu Val Pro Leu Gly Asp Asp Phe Arg Tyr  
 500 505 510  
 Asp Lys Pro Gln Glu Trp Asp Ala Gln Phe Phe Asn Tyr Gln Arg Leu  
 515 520 525  
 Phe Asp Phe Leu Asn Ser Lys Pro Glu Phe His Val Gln Ala Gln Phe  
 530 535 540  
 Gly Thr Leu Ser Glu Tyr Phe Asp Ala Leu Tyr Lys Arg Thr Gly Val  
 545 550 555 560  
 Glu Pro Gly Ala Arg Pro Pro Gly Phe Pro Val Leu Ser Gly Asp Phe  
 565 570 575  
 Phe Ser Tyr Ala Asp Arg Glu Asp His Tyr Trp Thr Gly Tyr Tyr Thr  
 580 585 590  
 Ser Arg Pro Phe Tyr Lys Ser Leu Asp Arg Val Leu Glu Thr His Leu  
 595 600 605  
 Arg Gly Ala Glu Val Leu Tyr Ser Leu Ala Leu Ala His Ala Arg Arg  
 610 615 620  
 Ser Gly Leu Thr Gly Gln Tyr Pro Leu Ser Asp Tyr Ala Val Leu Thr  
 625 630 635 640  
 Glu Ala Arg Arg Thr Leu Gly Leu Phe Gln His His Asp Ala Ile Thr  
 645 650 655  
 Gly Thr Ala Lys Glu Ala Val Val Val Asp Tyr Gly Val Arg Leu Leu  
 660 665 670  
 Arg Ser Leu Val Ser Leu Lys Gln Val Ile Ile Asn Ala Ala His Tyr  
 675 680 685  
 Leu Val Leu Gly Asp Lys Glu Thr Tyr Ser Phe Asp Pro Arg Ala Pro  
 690 695 700  
 Phe Leu Gln Met Val Ser Gln Ala Trp Arg Gly Ser Gln Ser Thr Leu  
 705 710 715 720

His Pro Ser Ala Ala Leu Val Pro Ala Ala Ala Ala Ser Ala Leu Leu  
 725 730 735  
 Pro Gln Arg Ala Pro Arg Phe Val Val Val Phe Asn Pro Leu Glu Gln  
 740 745 750  
 Glu Arg Leu Ser Val Val Ser Leu Leu Val Asn Ser Pro Arg Val Arg  
 755 760 765  
 Val Leu Ser Glu Glu Gly Gln Pro Leu Ser Val Gln Ile Ser Val Gln  
 770 775 780  
 Trp Ser Ser Ala Thr Asn Met Val Pro Asp Val Tyr Gln Val Ser Val  
 785 790 795 800  
 Pro Val Arg Leu Pro Ala Leu Gly Leu Gly Val Leu Gln Leu Gln Pro  
 805 810 815  
 Asp Leu Asp Gly Pro Tyr Thr Leu Gln Ser Ser Val His Val Tyr Leu  
 820 825 830  
 Asn Gly Val Lys Leu Ser Val Ser Arg Gln Thr Thr Phe Pro Leu Arg  
 835 840 845  
 Val Val Asp Ser Gly Thr Ser Asp Phe Ala Ile Ser Asn Arg Tyr Met  
 850 855 860  
 Gln Val Trp Phe Ser Gly Leu Thr Gly Leu Leu Lys Ser Val Arg Arg  
 865 870 875 880  
 Val Asp Glu Glu Gln Glu Gln Gln Val Asp Met Lys Leu Phe Val Tyr  
 885 890 895  
 Gly Thr Arg Thr Ser Lys Asp Lys Ser Gly Ala Tyr Leu Phe Leu Pro  
 900 905 910  
 Asp Asn Glu Ala Lys Pro Tyr Val Pro Lys Lys Pro Pro Val Leu Arg  
 915 920 925  
 Val Thr Glu Gly Pro Phe Phe Ser Glu Val Ala Ala Tyr Tyr Glu His  
 930 935 940  
 Phe His Gln Val Ile Arg Leu Tyr Asn Leu Pro Gly Val Glu Gly Leu  
 945 950 955 960  
 Ser Leu Asp Val Ser Phe Gln Val Asp Ile Arg Asp Tyr Val Asn Lys  
 965 970 975  
 Glu Leu Ala Leu Arg Ile His Thr Asp Ile Asp Ser Gln Gly Thr Phe  
 980 985 990  
 Phe Thr Asp Leu Asn Gly Phe Gln Val Gln Pro Arg Lys Tyr Leu Lys  
 995 1000 1005

Lys Leu Pro Leu Gln Ala Asn Phe Tyr Pro Met Pro Val Met Ala Tyr  
 1010 1015 1020  
 Ile Gln Asp Ser Gln Arg Arg Leu Thr Leu His Thr Ala Gln Ala Leu  
 1025 1030 1035 1040  
 Gly Val Ser Ser Leu Gly Asn Gly Gln Leu Glu Val Ile Leu Asp Arg  
 1045 1050 1055  
 Arg Leu Met Gln Asp Asp Asn Arg Gly Leu Gly Gln Gly Leu Lys Asp  
 1060 1065 1070  
 Asn Lys Ile Thr Cys Asn His Phe Arg Leu Leu Leu Glu Arg Arg Thr  
 1075 1080 1085  
 Leu Met Ser Pro Glu Val Gln Gln Glu Arg Ser Thr Ser Tyr Pro Ser  
 1090 1095 1100  
 Leu Leu Ser His Met Thr Ser Met Tyr Leu Asn Thr Pro Pro Leu Val  
 1105 1110 1115 1120  
 Leu Pro Val Ala Lys Arg Glu Ser Thr Ser Pro Thr Leu His Ser Phe  
 1125 1130 1135  
 His Pro Leu Ala Ser Pro Leu Pro Cys Asp Phe His Leu Leu Asn Leu  
 1140 1145 1150  
 Arg Met Leu Pro Ala Glu Val Ser Val Pro Val Arg Ala Asn Pro His  
 1155 1160 1165  
 His Gln Ala Glu Pro Cys Leu Leu Gly Arg His Ala Ala Asp Pro Pro  
 1170 1175 1180  
 Pro Leu Leu Ser Leu Thr Val Phe Gln Asp Thr Leu Pro Ala Ala Asp  
 1185 1190 1195 1200  
 Ala Ala Leu Ile Leu His Arg Lys Gly Phe Asp Cys Gly Leu Glu Ala  
 1205 1210 1215  
 Lys Asn Leu Gly Phe Asn Cys Thr Thr Ser Gln Gly Lys Leu Ala Leu  
 1220 1225 1230  
 Gly Ser Leu Phe His Gly Leu Asp Val Leu Phe Leu Gln Pro Thr Ser  
 1235 1240 1245  
 Leu Thr Leu Leu Tyr Pro Leu Ala Ser Pro Ser Asn Ser Thr Asp Ile  
 1250 1255 1260  
 Ser Leu Glu Pro Met Glu Ile Ser Thr Phe Arg Leu Arg Leu Gly  
 1265 1270 1275



<210> 94  
 <211> 1149  
 <212> PRT  
 <213> Ciona intestinalis

<400> 94  
 Met Lys Leu Lys Arg Gln Phe Leu Phe Phe Gly Gly Ile Leu Phe Phe  
   1                  5                  10                  15  
 Gly Ser Ile Trp Phe Met Ile Gly Gln Leu Asp Thr Pro Asn Ser Pro  
           20                  25                  30  
 Gln Lys Val Lys Phe Ser Glu Gly Ser Glu Asn Asp Gln Val Arg Thr  
       35                  40                  45  
 Leu Gln Asp Lys Leu Ser Leu Val Glu Lys Glu Leu Leu Glu Asn Arg  
       50                  55                  60  
 Lys Ile Met His Lys Val Lys Asp Ser Leu Gln Asp Met Thr Pro Met  
       65                  70                  75                  80  
 Lys Asn Val His Val Pro Met Gln Arg Gly Glu Ile Arg Asn Asn Val  
                   85                  90                  95  
 Asn Lys Pro Val Leu Pro Leu Ile Met Pro Lys Gln Phe Ala Asn Asp  
           100                  105                  110  
 Ser Arg Met Ser Asp Thr Cys Pro Val Leu Ser Tyr Ser Gly Gly Lys  
       115                  120                  125  
 Ser Asp Val Asn Met Ile Asn Val Tyr Asp His Leu Pro Phe Asp Asp  
       130                  135                  140  
 Pro Asp Gly Gly Val Trp Lys Gln Gly Trp Asp Ile Gln Thr Ser Asp  
       145                  150                  155                  160  
 Gln Glu Trp Ala Gly Arg Lys Leu Lys Val Phe Ile Val Pro His Ser  
           165                  170                  175  
 His Asn Asp Pro Gly Trp Leu Lys Thr Val Glu Arg Tyr Phe Ser Asp  
       180                  185                  190  
 Gln Thr Gln His Ile Leu Asn Asn Ile Val Asp Ala Leu Ser Gln Asp  
       195                  200                  205  
 Pro Ala Arg Lys Phe Ile Trp Ala Glu Met Ser Tyr Leu Ser Met Trp  
       210                  215                  220  
 Trp Asp Ile Ala Thr Pro Asp Arg Lys Gln Lys Met Gln Thr Leu Val  
       225                  230                  235                  240  
 Lys Asn Gly Gln Leu Glu Ile Val Thr Gly Gly Trp Val Met Asn Asp  
           245                  250                  255

Glu Ala Asn Thr His Tyr Phe Ala Met Ile Asp Gln Leu Ile Glu Gly  
                   260                  265                  270

Met Glu Trp Leu Arg Arg Thr Leu Asn Val Val Pro Lys Ser Gly Trp  
                   275                  280                  285

Ala Ile Asp Pro Phe Gly His Thr Pro Thr Met Ala Tyr Ile Leu Lys  
                   290                  295                  300

Gln Met Lys Phe Lys Asn Met Leu Ile Gln Arg Val His Tyr Ala Val  
 305                  310                  315                  320

Lys Lys Tyr Leu Ala Gln Glu Lys Ser Leu Glu Phe Arg Trp Arg Gln  
                   325                  330                  335

Met Trp Asp Ser Ala Ser Ser Thr Asp Met Met Cys His Leu Met Pro  
                   340                  345                  350

Phe Tyr Ser Tyr Asp Val Pro His Thr Cys Gly Pro Asp Pro Lys Ile  
                   355                  360                  365

Cys Cys Gln Phe Asp Phe Ala Arg Leu Pro Gly Gly Lys Ile Thr Cys  
                   370                  375                  380

Pro Trp Lys Val Pro Pro Val Ala Ile Thr Asp Ser Asn Val Glu Thr  
 385                  390                  395                  400

Arg Ala Gly Ile Leu Leu Asp Gln Tyr Arg Lys Lys Ser Lys Leu Phe  
                   405                  410                  415

Lys Ser Asp Thr Leu Leu Ile Ile Leu Gly Asp Asp Phe Arg Tyr Ser  
                   420                  425                  430

Leu Ser Lys Glu Thr Asn Asp Gln Phe Asp Asn Tyr Ala Arg Ile Ile  
                   435                  440                  445

Ser Tyr Val Asn Ser His Pro Glu Leu Asn Ala Lys Leu Gln Phe Gly  
                   450                  455                  460

Thr Leu Ser Glu Tyr Phe Asp Ala Met Lys Ser Glu Val Gly Gly Glu  
 465                  470                  475                  480

Glu Lys Leu Pro Ala Leu Ser Gly Asp Phe Phe Thr Tyr Ala Asp Arg  
                   485                  490                  495

Glu Asp His Tyr Trp Ser Gly Tyr Tyr Thr Ser Arg Pro Tyr His Lys  
                   500                  505                  510

Met Gln Glu Arg Val Leu Glu Ser His Leu Arg Gly Ala Glu Met Leu  
                   515                  520                  525

Phe Ala Leu Ser Trp Pro Lys Ile Gln Trp Thr Gly Leu Gly Glu Thr  
                   530                  535                  540

Phe Ser His Glu Leu Tyr Pro Leu Leu Val Gln Ala Arg Gln Asn Leu  
 545 550 555 560

Gly Leu Phe Gln His His Asp Gly Ile Thr Gly Thr Ala Lys Asp His  
 565 570 575

Val Val Val Asp Tyr Gly Asn Lys Leu Met Lys Ser Val Met Asp Ala  
 580 585 590

Lys Lys Val Ile Ser Tyr Ser Ala Gln Val Leu Leu Gln Glu Met Ile  
 595 600 605

Thr Phe Asp Pro Asn Thr Met Val Leu Asn Tyr Asp Glu Val Tyr Gln  
 610 615 620

Ala Gln Asn Gln Gln Pro Ala Pro Val Val Val Lys Leu Pro Thr Lys  
 625 630 635 640

Asn Glu Glu Ala Arg Lys Val Val Leu Tyr Asn Ser Leu Asp Tyr Asp  
 645 650 655

Arg Thr Gly Val Val Arg Leu Ile Val Thr Ser Pro Asp Val Val Val  
 660 665 670

Met Ser Glu Asn Lys Asn Val Val Pro Ser Gln Thr Ser Pro Ile Trp  
 675 680 685

Ser Asp Ser Thr Glu Ile Arg Thr Asp Gln Phe Glu Leu Val Phe Leu  
 690 695 700

Ser Thr Val Pro Ala Ile Gly Leu Ala Val Tyr Lys Ile Trp Glu Asp  
 705 710 715 720

Asn Asp Val Ala Asp Thr Thr His Ser Thr Val Lys Phe Ile Asn Pro  
 725 730 735

Arg Val Gly Phe Ser Lys Arg Thr Arg Ser Lys Phe Val Leu Asp Val  
 740 745 750

Glu Asp Ser Gly Glu Phe Thr Ile Met Asn Asp Gln Leu Val Ala His  
 755 760 765

Phe Ser Gly Gln Asn Gly Met Leu Gln Ser Val Thr Thr Val Arg Asp  
 770 775 780

Asn Val Lys Thr Gln Leu Gly Ile Glu Phe Val Ala Tyr Thr Ser Arg  
 785 790 795 800

Asn Lys Lys Asp Lys Ser Gly Ala Tyr Leu Phe Leu Pro Ala Gly Pro  
 805 810 815

Ala Gln Pro His Val Thr Glu Ser His Arg Pro Leu Val Arg Ile Ile  
 820 825 830

Arg Gly Pro Val Met Ser Thr Val His Val Leu Leu Pro Asn Val Leu  
 835 840 845  
 His Lys Val Thr Leu Tyr Thr Gly Thr Gly Ala Gly Thr Gln Ser Leu  
 850 855 860  
 Gly Val His Val Ser Asn Asp Val Asp Val Arg Thr Gly Tyr Asp Asn  
 865 870 875 880  
 Lys Glu Leu Ser Met Arg Leu Asn Ser Glu Val Leu Ser Gly Ser Lys  
 885 890 895  
 Phe Phe Thr Asp Leu Asn Gly Phe Gln Ile Gln Pro Arg Thr Thr Tyr  
 900 905 910  
 Ser Lys Leu Pro Leu Gln Ala Asn Phe Tyr Pro Ile Pro Thr Met Ala  
 915 920 925  
 Phe Ile Gln Asp Glu Lys Ser Arg Leu Thr Leu Met Thr Ala Gln Pro  
 930 935 940  
 Leu Gly Val Ala Ser Leu Lys Ser Gly Gln Leu Glu Val Val Leu Asp  
 945 950 955 960  
 Arg Arg Leu Met Gln Asp Asp Asn Arg Gly Val Gly Gln Gly Val Lys  
 965 970 975  
 Asp Asn Leu Pro Thr Pro Glu Ser Phe Val Ile Met Leu Glu Arg Trp  
 980 985 990  
 Thr Ala Ile Ala Ala Lys Glu Ser Lys Ser Ser Ala Lys Leu Ala Tyr  
 995 1000 1005  
 Pro Ser Met Ala Val Tyr Gln Ser Ser Trp Glu Leu Leu His Pro Ile  
 1010 1015 1020  
 Arg Pro Met Ser Val Asn Gly Pro Val His Leu Lys Glu Asp Tyr Arg  
 1025 1030 1035 1040  
 Ser Leu Pro Gln Pro Leu Pro Cys Asp Val His Val Leu Asn Leu Arg  
 1045 1050 1055  
 Ala Ile His Ser Lys Asp Ala Val Ala Pro Thr Asp Gln Ser Ala Leu  
 1060 1065 1070  
 Leu Leu His Thr Val Gly Arg Glu Cys Ser Leu Asp Ala Asp Lys Tyr  
 1075 1080 1085  
 Phe His Pro Thr Cys Leu Met His Gly Val Glu Lys Leu Ala Ile Thr  
 1090 1095 1100  
 Ile Ser Thr Leu Phe Thr Asn Ser Gly Met Arg Lys Thr Ser Leu Ser  
 1105 1110 1115 1120

Leu Gln His Asp Gly Ser Leu Leu Asp Asn Gln Gly Gly Ile Thr Val  
                   1125                  1130                  1135

Ser Pro Met Glu Ile Gln Ala Tyr Lys Ile Val Leu Thr  
                   1140                  1145

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<211> 1173

<212> PRT

<213> Arabidopsis thaliana

<400> 95

Met Pro Phe Ser Ser Tyr Ile Gly Asn Ser Arg Arg Ser Ser Thr Gly  
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Gly Gly Thr Gly Gly Trp Gly Gln Ser Leu Leu Pro Thr Ala Leu Ser  
                   20                  25                  30

Lys Ser Lys Leu Ala Ile Asn Arg Lys Pro Arg Lys Arg Thr Leu Val  
                   35                  40                  45

Val Asn Phe Ile Phe Ala Asn Phe Phe Val Ile Ala Leu Thr Val Ser  
                   50                  55                  60

Leu Leu Phe Phe Leu Leu Thr Leu Phe His Phe Gly Val Pro Gly Pro  
   65                  70                  75                  80

Ile Ser Ser Arg Phe Leu Thr Ser Arg Ser Asn Arg Ile Val Lys Pro  
                   85                  90                  95

Arg Lys Asn Ile Asn Arg Arg Pro Leu Asn Asp Ser Asn Ser Gly Ala  
                   100                  105                  110

Val Val Asp Ile Thr Thr Lys Asp Leu Tyr Asp Arg Ile Glu Phe Leu  
                   115                  120                  125

Asp Thr Asp Gly Gly Pro Trp Lys Gln Gly Trp Arg Val Thr Tyr Lys  
   130                  135                  140

Asp Asp Glu Trp Glu Lys Glu Lys Leu Lys Ile Phe Val Val Pro His  
   145                  150                  155                  160

Ser His Asn Asp Pro Gly Trp Lys Leu Thr Val Glu Glu Tyr Tyr Gln  
                   165                  170                  175

Arg Gln Ser Arg His Ile Leu Asp Thr Ile Val Glu Thr Leu Ser Lys  
                   180                  185                  190

Asp Ser Arg Arg Lys Phe Ile Trp Glu Glu Met Ser Tyr Leu Glu Arg  
                   195                  200                  205

Trp	Trp	Arg	Asp	Ala	Ser	Pro	Asn	Lys	Gln	Glu	Ala	Leu	Thr	Lys	Leu	210	215	220
Val	Lys	Asp	Gly	Gln	Leu	Glu	Ile	Val	Gly	Gly	Gly	Trp	Val	Met	Asn	225	230	235
Asp	Glu	Ala	Asn	Ser	His	Tyr	Phe	Ala	Ile	Ile	Glu	Gln	Ile	Ala	Glu	245	250	255
Gly	Asn	Met	Trp	Leu	Asn	Asp	Thr	Ile	Gly	Val	Ile	Pro	Lys	Asn	Ser	260	265	270
Trp	Ala	Ile	Asp	Pro	Phe	Gly	Tyr	Ser	Ser	Thr	Met	Ala	Tyr	Leu	Leu	275	280	285
Arg	Arg	Met	Gly	Phe	Glu	Asn	Met	Leu	Ile	Gln	Arg	Thr	His	Tyr	Glu	290	295	300
Leu	Lys	Lys	Asp	Leu	Ala	Gln	His	Lys	Asn	Leu	Glu	Tyr	Ile	Trp	Arg	305	310	315
Gln	Ser	Trp	Asp	Ala	Met	Glu	Thr	Thr	Asp	Ile	Phe	Val	His	Met	Met	325	330	335
Pro	Phe	Tyr	Ser	Tyr	Asp	Ile	Pro	His	Thr	Cys	Gly	Pro	Glu	Pro	Ala	340	345	350
Ile	Cys	Cys	Gln	Phe	Asp	Phe	Ala	Arg	Met	Arg	Gly	Phe	Lys	Tyr	Glu	355	360	365
Leu	Cys	Pro	Trp	Gly	Lys	His	Pro	Val	Glu	Thr	Thr	Leu	Glu	Asn	Val	370	375	380
Gln	Glu	Arg	Ala	Leu	Lys	Leu	Leu	Asp	Gln	Tyr	Arg	Lys	Lys	Ser	Thr	385	390	395
Leu	Tyr	Arg	Thr	Asn	Thr	Leu	Leu	Ile	Pro	Leu	Gly	Asp	Asp	Phe	Arg	405	410	415
Tyr	Ile	Ser	Ile	Asp	Glu	Ala	Glu	Ala	Gln	Phe	Arg	Asn	Tyr	Gln	Met	420	425	430
Leu	Phe	Asp	His	Ile	Asn	Ser	Asn	Pro	Ser	Leu	Asn	Ala	Glu	Ala	Lys	435	440	445
Phe	Gly	Thr	Leu	Glu	Asp	Tyr	Phe	Arg	Thr	Val	Arg	Glu	Glu	Ala	Asp	450	455	460
Arg	Val	Asn	Tyr	Ser	Arg	Pro	Gly	Glu	Val	Gly	Ser	Gly	Gln	Val	Val	465	470	475
Gly	Phe	Pro	Ser	Leu	Ser	Gly	Asp	Phe	Phe	Thr	Tyr	Ala	Asp	Arg	Gln	485	490	495

Gln Asp Tyr Trp Ser Gly Tyr Tyr Val Ser Arg Pro Phe Phe Lys Ala  
 500 505 510  
 Val Asp Arg Val Leu Glu His Thr Leu Arg Gly Ala Glu Ile Met Met  
 515 520 525  
 Ser Phe Leu Leu Gly Tyr Cys His Arg Ile Gln Cys Glu Lys Phe Pro  
 530 535 540  
 Thr Ser Phe Thr Tyr Lys Leu Thr Ala Ala Arg Arg Asn Leu Ala Leu  
 545 550 555 560  
 Phe Gln His His Asp Gly Val Thr Gly Thr Ala Lys Asp Tyr Val Val  
 565 570 575  
 Gln Asp Tyr Gly Thr Arg Met His Thr Ser Leu Gln Asp Leu Gln Ile  
 580 585 590  
 Phe Met Ser Lys Ala Ile Glu Val Leu Leu Gly Ile Arg His Glu Lys  
 595 600 605  
 Glu Lys Ser Asp Gln Ser Pro Ser Phe Phe Glu Ala Glu Gln Met Arg  
 610 615 620  
 Ser Lys Tyr Asp Ala Arg Pro Val His Lys Pro Ile Ala Ala Arg Glu  
 625 630 635 640  
 Gly Asn Ser His Thr Val Ile Leu Phe Asn Pro Ser Glu Gln Thr Arg  
 645 650 655  
 Glu Glu Val Val Thr Val Val Val Asn Arg Ala Glu Ile Ser Val Leu  
 660 665 670  
 Asp Ser Asn Trp Thr Cys Val Pro Ser Gln Ile Ser Pro Glu Val Gln  
 675 680 685  
 His Asp Asp Thr Lys Leu Phe Thr Gly Arg His Arg Leu Tyr Trp Lys  
 690 695 700  
 Ala Ser Ile Pro Ala Leu Gly Leu Arg Thr Tyr Phe Ile Ala Asn Gly  
 705 710 715 720  
 Asn Val Glu Cys Glu Lys Ala Thr Pro Ser Lys Leu Lys Tyr Ala Ser  
 725 730 735  
 Glu Phe Asp Pro Phe Pro Cys Pro Pro Pro Tyr Ser Cys Ser Lys Leu  
 740 745 750  
 Asp Asn Asp Val Thr Glu Ile Arg Asn Glu His Gln Thr Leu Val Phe  
 755 760 765  
 Asp Val Lys Asn Gly Ser Leu Arg Lys Ile Val His Arg Asn Gly Ser  
 770 775 780

Glu Thr Val Val Gly Glu Glu Ile Gly Met Tyr Ser Ser Pro Glu Ser  
 785 790 795 800  
 Gly Ala Tyr Leu Phe Lys Pro Asp Gly Glu Ala Gln Pro Ile Val Gln  
 805 810 815  
 Pro Asp Gly His Val Val Thr Ser Glu Gly Leu Leu Val Gln Glu Val  
 820 825 830  
 Phe Ser Tyr Pro Lys Thr Lys Trp Glu Lys Ser Pro Leu Ser Gln Lys  
 835 840 845  
 Thr Arg Leu Tyr Thr Gly Gly Asn Thr Leu Gln Asp Gln Val Val Glu  
 850 855 860  
 Ile Glu Tyr His Val Glu Leu Leu Gly Asn Asp Phe Asp Asp Arg Glu  
 865 870 875 880  
 Leu Ile Val Arg Tyr Lys Thr Asp Val Asp Asn Lys Lys Val Phe Tyr  
 885 890 895  
 Ser Asp Leu Asn Gly Phe Gln Met Ser Arg Arg Glu Thr Tyr Asp Lys  
 900 905 910  
 Ile Pro Leu Gln Gly Asn Tyr Tyr Pro Met Pro Ser Leu Ala Phe Ile  
 915 920 925  
 Gln Gly Ser Asn Gly Gln Arg Phe Ser Val His Ser Arg Gln Ser Leu  
 930 935 940  
 Gly Val Ala Ser Leu Lys Glu Gly Trp Leu Glu Ile Met Leu Asp Arg  
 945 950 955 960  
 Arg Leu Val Arg Asp Asp Gly Arg Gly Leu Gly Gln Gly Val Met Asp  
 965 970 975  
 Asn Arg Ala Met Thr Val Val Phe His Leu Leu Ala Glu Ser Asn Ile  
 980 985 990  
 Ser Gln Ala Asp Pro Ala Ser Asn Thr Asn Pro Arg Asn Pro Ser Leu  
 995 1000 1005  
 Leu Ser His Leu Ile Gly Ala His Leu Asn Tyr Pro Ile Asn Thr Phe  
 1010 1015 1020  
 Ile Ala Lys Lys Pro Gln Asp Ile Ser Val Arg Val Pro Gln Tyr Gly  
 1025 1030 1035 1040  
 Ser Phe Ala Pro Leu Ala Lys Pro Leu Pro Cys Asp Leu His Ile Val  
 1045 1050 1055  
 Asn Phe Lys Val Pro Arg Pro Ser Lys Tyr Ser Gln Gln Leu Glu Glu  
 1060 1065 1070



Asp Lys Pro Arg Phe Ala Leu Ile Leu Asn Arg Arg Ala Trp Asp Ser  
 1075 1080 1085

Ala Tyr Cys His Lys Gly Arg Gln Val Asn Cys Thr Ser Met Ala Asn  
 1090 1095 1100

Glu Pro Val Asn Phe Ser Asp Met Phe Lys Asp Leu Ala Ala Ser Lys  
 1105 1110 1115 1120

Val Lys Pro Thr Ser Leu Asn Leu Leu Gln Glu Asp Met Glu Ile Leu  
 1125 1130 1135

Gly Tyr Asp Asp Gln Glu Leu Pro Arg Asp Ser Ser Gln Pro Arg Glu  
 1140 1145 1150

Gly Arg Val Ser Ile Ser Pro Met Glu Ile Arg Ala Tyr Lys Leu Glu  
 1155 1160 1165

Leu Arg Pro His Lys  
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<210> 96

<211> 1108

<212> PRT

<213> Drosophila sp.

<400> 96

Met Leu Arg Ile Arg Arg Arg Phe Ala Leu Val Ile Cys Ser Gly Cys  
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Leu Leu Val Phe Leu Ser Leu Tyr Ile Ile Leu Asn Phe Ala Ala Pro  
 20 25 30

Ala Ala Thr Gln Ile Lys Pro Asn Tyr Glu Asn Ile Glu Asn Lys Leu  
 35 40 45

His Glu Leu Glu Asn Gly Leu Gln Glu His Gly Glu Glu Met Arg Asn  
 50 55 60

Leu Arg Ala Arg Leu Ala Lys Thr Ser Asn Arg Asp Asp Pro Ile Arg  
 65 70 75 80

Pro Pro Leu Lys Val Ala Arg Ser Pro Arg Pro Gly Gln Cys Gln Asp  
 85 90 95

Val Val Gln Asp Val Pro Asn Val Asp Val Gln Met Leu Glu Leu Tyr  
 100 105 110

Asp Arg Met Ser Phe Lys Asp Ile Asp Gly Gly Val Trp Lys Gln Gly  
 115 120 125

Trp	Asn	Ile	Lys	Tyr	Asp	Pro	Leu	Lys	Tyr	Asn	Ala	His	His	Lys	Leu	130	135	140
Lys	Val	Phe	Val	Val	Pro	His	Ser	His	Asn	Asp	Pro	Gly	Trp	Ile	Gln	145	150	155
Thr	Phe	Glu	Glu	Tyr	Tyr	Gln	His	Asp	Thr	Lys	His	Ile	Leu	Ser	Asn	165	170	175
Ala	Leu	Arg	His	Leu	His	Asp	Asn	Pro	Glu	Met	Lys	Phe	Ile	Trp	Ala	180	185	190
Glu	Ile	Ser	Tyr	Phe	Ala	Arg	Phe	Tyr	His	Asp	Leu	Gly	Glu	Asn	Lys	195	200	205
Lys	Leu	Gln	Met	Lys	Ser	Ile	Val	Lys	Asn	Gly	Gln	Leu	Glu	Phe	Val	210	215	220
Thr	Gly	Gly	Trp	Val	Met	Pro	Asp	Glu	Ala	Asn	Ser	His	Trp	Arg	Asn	225	230	235
Val	Leu	Leu	Gln	Leu	Thr	Glu	Gly	Gln	Thr	Trp	Leu	Lys	Gln	Phe	Met	245	250	255
Asn	Val	Thr	Pro	Thr	Ala	Ser	Trp	Ala	Ile	Asp	Pro	Phe	Gly	His	Ser	260	265	270
Pro	Thr	Met	Pro	Tyr	Ile	Leu	Gln	Lys	Ser	Gly	Phe	Lys	Asn	Met	Leu	275	280	285
Ile	Gln	Arg	Thr	His	Tyr	Ser	Val	Lys	Lys	Glu	Leu	Ala	Gln	Gln	Arg	290	295	300
Gln	Leu	Glu	Phe	Leu	Trp	Arg	Gln	Ile	Trp	Asp	Asn	Lys	Gly	Asp	Thr	305	310	315
Ala	Leu	Phe	Thr	His	Met	Met	Pro	Phe	Tyr	Ser	Tyr	Asp	Ile	Pro	His	325	330	335
Thr	Cys	Gly	Pro	Asp	Pro	Lys	Val	Cys	Cys	Gln	Phe	Asp	Phe	Lys	Arg	340	345	350
Met	Gly	Ser	Phe	Gly	Leu	Ser	Cys	Pro	Trp	Lys	Val	Pro	Pro	Arg	Thr	355	360	365
Ile	Ser	Asp	Gln	Asn	Val	Ala	Ala	Arg	Ser	Asp	Leu	Leu	Val	Asp	Gln	370	375	380
Trp	Lys	Lys	Lys	Ala	Glu	Leu	Tyr	Arg	Thr	Asn	Val	Leu	Leu	Ile	Pro	385	390	395
Leu	Gly	Asp	Asp	Phe	Arg	Phe	Lys	Gln	Asn	Thr	Glu	Trp	Asp	Val	Gln	405	410	415

Arg Val Asn Tyr Glu Arg Leu Phe Glu His Ile Asn Ser Gln Ala His  
 420 425 430  
 Phe Asn Val Gln Ala Gln Phe Gly Thr Leu Gln Glu Tyr Phe Asp Ala  
 435 440 445  
 Val His Gln Ala Glu Arg Ala Gly Gln Ala Glu Phe Pro Thr Leu Ser  
 450 455 460  
 Gly Asp Phe Phe Thr Tyr Ala Asp Arg Ser Asp Asn Tyr Trp Ser Gly  
 465 470 475 480  
 Tyr Tyr Thr Ser Arg Pro Tyr His Lys Arg Met Asp Arg Val Leu Met  
 485 490 495  
 His Tyr Val Arg Ala Ala Glu Met Leu Ser Ala Trp His Ser Trp Asp  
 500 505 510  
 Gly Met Ala Arg Ile Glu Glu Arg Leu Glu Gln Ala Arg Arg Glu Leu  
 515 520 525  
 Ser Leu Phe Gln His His Asp Gly Ile Thr Gly Thr Ala Lys Thr His  
 530 535 540  
 Val Val Val Asp Tyr Glu Gln Arg Met Gln Glu Ala Leu Lys Ala Cys  
 545 550 555 560  
 Gln Met Val Met Gln Gln Ser Val Tyr Arg Leu Leu Thr Lys Pro Ser  
 565 570 575  
 Ile Tyr Ser Pro Asp Phe Ser Phe Ser Tyr Phe Thr Leu Asp Asp Ser  
 580 585 590  
 Arg Trp Pro Gly Ser Gly Val Glu Asp Ser Arg Thr Thr Ile Ile Leu  
 595 600 605  
 Gly Glu Asp Ile Leu Pro Ser Lys His Val Val Met His Asn Thr Leu  
 610 615 620  
 Pro His Trp Arg Glu Gln Leu Val Asp Phe Tyr Val Ser Ser Pro Phe  
 625 630 635 640  
 Val Ser Val Thr Asp Leu Ala Asn Asn Pro Val Glu Ala Gln Val Ser  
 645 650 655  
 Pro Val Trp Ser Trp His His Asp Thr Leu Thr Lys Thr Ile His Pro  
 660 665 670  
 Gln Gly Ser Thr Thr Lys Tyr Arg Ile Ile Phe Lys Ala Arg Val Pro  
 675 680 685  
 Pro Met Gly Leu Ala Thr Tyr Val Leu Thr Ile Ser Asp Ser Lys Pro  
 690 695 700

Glu His Thr Ser Tyr Ala Ser Asn Leu Leu Leu Arg Lys Asn Pro Thr  
 705 710 715 720  
 Ser Leu Pro Leu Gly Gln Tyr Pro Glu Asp Val Lys Phe Gly Asp Pro  
 725 730 735  
 Arg Glu Ile Ser Leu Arg Val Gly Asn Gly Pro Thr Leu Ala Phe Ser  
 740 745 750  
 Glu Gln Gly Leu Leu Lys Ser Ile Gln Leu Thr Gln Asp Ser Pro His  
 755 760 765  
 Val Pro Val His Phe Lys Phe Leu Lys Tyr Gly Val Arg Ser His Gly  
 770 775 780  
 Asp Arg Ser Gly Ala Tyr Leu Phe Leu Pro Asn Gly Pro Ala Ser Pro  
 785 790 795 800  
 Val Glu Leu Gly Gln Pro Val Val Leu Val Thr Lys Gly Lys Leu Glu  
 805 810 815  
 Ser Ser Val Ser Val Gly Leu Pro Ser Val Val His Gln Thr Ile Met  
 820 825 830  
 Arg Gly Gly Ala Pro Glu Ile Arg Asn Leu Val Asp Ile Gly Ser Leu  
 835 840 845  
 Asp Asn Thr Glu Ile Val Met Arg Leu Glu Thr His Ile Asp Ser Gly  
 850 855 860  
 Asp Ile Phe Tyr Thr Asp Leu Asn Gly Leu Gln Phe Ile Lys Arg Arg  
 865 870 875 880  
 Arg Leu Asp Lys Leu Pro Leu Gln Ala Asn Tyr Tyr Pro Ile Pro Ser  
 885 890 895  
 Gly Met Phe Ile Glu Asp Ala Asn Thr Arg Leu Thr Leu Leu Thr Gly  
 900 905 910  
 Gln Pro Leu Gly Gly Ser Ser Leu Ala Ser Gly Glu Leu Glu Ile Met  
 915 920 925  
 Gln Asp Arg Arg Leu Ala Ser Asp Asp Glu Arg Gly Leu Gly Gln Gly  
 930 935 940  
 Val Leu Asp Asn Lys Pro Val Leu His Ile Tyr Arg Leu Val Leu Glu  
 945 950 955 960  
 Lys Val Asn Asn Cys Val Arg Pro Ser Lys Leu His Pro Ala Gly Tyr  
 965 970 975  
 Leu Thr Ser Ala Ala His Lys Ala Ser Gln Ser Leu Leu Asp Pro Leu  
 980 985 990

Asp Lys Phe Ile Phe Ala Glu Asn Glu Trp Ile Gly Ala Gln Gly Gln  
 995 1000 1005

Phe Gly Gly Asp His Pro Ser Ala Arg Glu Asp Leu Asp Val Ser Val  
 1010 1015 1020

Met Arg Arg Leu Thr Lys Ser Ser Ala Lys Thr Gln Arg Val Gly Tyr  
 1025 1030 1035 1040

Val Leu His Arg Thr Asn Leu Met Gln Cys Gly Thr Pro Glu Glu His  
 1045 1050 1055

Thr Gln Lys Leu Asp Val Cys His Leu Leu Pro Asn Val Ala Arg Cys  
 1060 1065 1070

Glu Arg Thr Thr Leu Thr Phe Leu Gln Asn Leu Glu His Leu Asp Gly  
 1075 1080 1085

Met Val Ala Pro Glu Val Cys Pro Met Glu Thr Ala Ala Tyr Val Ser  
 1090 1095 1100

Ser His Ser Ser  
 1105

<210> 97  
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<400> 97  
 Met Lys Leu Ser Arg Gln Phe Thr Val Phe Gly Ser Ala Ile Phe Cys  
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 Val Val Ile Phe Ser Leu Tyr Leu Met Leu Asp Arg Gly His Leu Asp  
 20 25 30  
 Tyr Pro Arg Asn Pro Arg Arg Glu Gly Ser Phe Pro Gln Gly Gln Leu  
 35 40 45  
 Ser Met Leu Gln Glu Lys Ile Asp His Leu Glu Arg Leu Leu Ala Glu  
 50 55 60  
 Asn Asn Glu Ile Ile Ser Asn Ile Arg Asp Ser Val Ile Asn Leu Ser  
 65 70 75 80  
 Glu Ser Val Glu Asp Gly Pro Lys Ser Ser Gln Ser Asn Phe Ser Gln  
 85 90 95  
 Gly Ala Gly Ser His Leu Leu Pro Ser Gln Leu Ser Leu Ser Val Asp  
 100 105 110

Thr	Ala	Asp	Cys	Leu	Phe	Ala	Ser	Gln	Ser	Gly	Ser	His	Asn	Ser	Asp	115	120	125
Val	Gln	Met	Leu	Asp	Val	Tyr	Ser	Leu	Ile	Ser	Phe	Asp	Asn	Pro	Asp	130	135	140
Gly	Gly	Val	Trp	Lys	Gln	Gly	Phe	Asp	Ile	Thr	Tyr	Glu	Ser	Asn	Glu	145	150	155
Trp	Asp	Thr	Glu	Pro	Leu	Gln	Val	Phe	Val	Val	Pro	His	Ser	His	Asn	165	170	175
Asp	Pro	Gly	Trp	Leu	Lys	Thr	Phe	Asn	Asp	Tyr	Phe	Arg	Asp	Lys	Thr	180	185	190
Gln	Tyr	Ile	Phe	Asn	Asn	Met	Val	Leu	Lys	Leu	Lys	Glu	Asp	Ser	Arg	195	200	205
Arg	Lys	Phe	Ile	Trp	Ser	Glu	Ile	Ser	Tyr	Leu	Ser	Lys	Trp	Trp	Asp	210	215	220
Ile	Ile	Asp	Ile	Gln	Lys	Lys	Asp	Ala	Val	Lys	Ser	Leu	Ile	Glu	Asn	225	230	235
Gly	Gln	Leu	Glu	Ile	Val	Thr	Gly	Gly	Trp	Val	Met	Pro	Asp	Glu	Ala	245	250	255
Thr	Pro	His	Tyr	Phe	Ala	Leu	Ile	Asp	Gln	Leu	Ile	Glu	Gly	His	Gln	260	265	270
Trp	Leu	Glu	Asn	Asn	Ile	Gly	Val	Lys	Pro	Arg	Ser	Gly	Trp	Ala	Ile	275	280	285
Asp	Pro	Phe	Gly	His	Ser	Pro	Thr	Met	Ala	Tyr	Leu	Leu	Asn	Arg	Ala	290	295	300
Gly	Leu	Ser	His	Met	Leu	Ile	Gln	Arg	Val	His	Tyr	Ala	Val	Lys	Lys	305	310	315
His	Phe	Ala	Leu	His	Lys	Thr	Leu	Glu	Phe	Phe	Trp	Arg	Gln	Asn	Trp	325	330	335
Asp	Leu	Gly	Ser	Val	Thr	Asp	Ile	Leu	Cys	His	Met	Met	Pro	Phe	Tyr	340	345	350
Ser	Tyr	Asp	Ile	Pro	His	Thr	Cys	Gly	Pro	Asp	Pro	Lys	Ile	Cys	Cys	355	360	365
Gln	Phe	Asp	Phe	Lys	Arg	Leu	Pro	Gly	Gly	Arg	Phe	Gly	Cys	Pro	Trp	370	375	380
Gly	Val	Pro	Pro	Glu	Thr	Ile	His	Pro	Gly	Asn	Val	Gln	Ser	Arg	Ala	385	390	395

Arg Met Leu Leu Asp Gln Tyr Arg Lys Lys Ser Lys Leu Phe Arg Thr  
 405 410 415  
 Lys Val Leu Leu Ala Pro Leu Gly Asp Asp Phe Arg Tyr Cys Glu Tyr  
 420 425 430  
 Thr Glu Trp Asp Leu Gln Phe Lys Asn Tyr Gln Gln Leu Phe Asp Tyr  
 435 440 445  
 Met Asn Ser Gln Ser Lys Phe Lys Val Lys Ile Gln Phe Gly Thr Leu  
 450 455 460  
 Ser Asp Phe Phe Asp Ala Leu Asp Lys Ala Asp Glu Thr Gln Arg Asp  
 465 470 475 480  
 Lys Gly Gln Ser Met Phe Pro Val Leu Ser Gly Asp Phe Phe Thr Tyr  
 485 490 495  
 Ala Asp Arg Asp Asp His Tyr Trp Ser Gly Tyr Phe Thr Ser Arg Pro  
 500 505 510  
 Phe Tyr Lys Arg Met Asp Arg Ile Met Glu Ser His Leu Arg Ala Ala  
 515 520 525  
 Glu Ile Leu Tyr Tyr Phe Ala Leu Arg Gln Ala His Lys Tyr Lys Ile  
 530 535 540  
 Asn Lys Phe Leu Ser Ser Ser Leu Tyr Thr Ala Leu Thr Glu Ala Arg  
 545 550 555 560  
 Arg Asn Leu Gly Leu Phe Gln His His Asp Ala Ile Thr Gly Thr Ala  
 565 570 575  
 Lys Asp Trp Val Val Val Asp Tyr Gly Thr Arg Leu Phe His Ser Leu  
 580 585 590  
 Met Val Leu Glu Lys Ile Ile Gly Asn Ser Ala Phe Leu Leu Ile Gly  
 595 600 605  
 Lys Asp Lys Leu Thr Tyr Asp Ser Tyr Ser Pro Asp Thr Phe Leu Glu  
 610 615 620  
 Met Asp Leu Lys Gln Lys Ser Gln Asp Ser Leu Pro Gln Lys Asn Ile  
 625 630 635 640  
 Ile Arg Leu Ser Ala Glu Pro Arg Tyr Leu Val Val Tyr Asn Pro Leu  
 645 650 655  
 Glu Gln Asp Arg Ile Ser Leu Val Ser Val Tyr Val Ser Ser Pro Thr  
 660 665 670  
 Val Gln Val Phe Ser Ala Ser Gly Lys Pro Val Glu Val Gln Val Ser  
 675 680 685

Ala Val Trp Asp Thr Ala Asn Thr Ile Ser Glu Thr Ala Tyr Glu Ile  
 690 695 700  
 Ser Phe Arg Ala His Ile Pro Pro Leu Gly Leu Lys Val Tyr Lys Ile  
 705 710 715 720  
 Leu Glu Ser Ala Ser Ser Asn Ser His Leu Ala Asp Tyr Val Leu Tyr  
 725 730 735  
 Lys Asn Lys Val Glu Asp Ser Gly Ile Phe Thr Ile Lys Asn Met Ile  
 740 745 750  
 Asn Thr Glu Glu Gly Ile Thr Leu Glu Asn Ser Phe Val Leu Leu Arg  
 755 760 765  
 Phe Asp Gln Thr Gly Leu Met Lys Gln Met Met Thr Lys Glu Asp Gly  
 770 775 780  
 Lys His His Glu Val Asn Val Gln Phe Ser Trp Tyr Gly Thr Thr Ile  
 785 790 795 800  
 Lys Arg Asp Lys Ser Gly Ala Tyr Leu Phe Leu Pro Asp Gly Asn Ala  
 805 810 815  
 Lys Pro Tyr Val Tyr Thr Thr Pro Pro Phe Val Arg Val Thr His Gly  
 820 825 830  
 Arg Ile Tyr Ser Glu Val Thr Cys Phe Phe Asp His Val Thr His Arg  
 835 840 845  
 Val Arg Leu Tyr His Ile Gln Gly Ile Glu Gly Gln Ser Val Glu Val  
 850 855 860  
 Ser Asn Ile Val Asp Ile Arg Lys Val Tyr Asn Arg Glu Ile Ala Met  
 865 870 875 880  
 Lys Ile Ser Ser Asp Ile Lys Ser Gln Asn Arg Phe Tyr Thr Asp Leu  
 885 890 895  
 Asn Gly Tyr Gln Ile Gln Pro Arg Met Thr Leu Ser Lys Leu Pro Leu  
 900 905 910  
 Gln Ala Asn Val Tyr Pro Met Thr Thr Met Ala Tyr Ile Gln Asp Ala  
 915 920 925  
 Lys His Arg Leu Thr Leu Leu Ser Ala Gln Ser Leu Gly Val Ser Ser  
 930 935 940  
 Leu Asn Ser Gly Gln Ile Glu Val Ile Met Asp Arg Arg Leu Met Gln  
 945 950 955 960  
 Asp Asp Asn Arg Gly Leu Glu Gln Gly Ile Gln Asp Asn Lys Ile Thr  
 965 970 975





Asn Asn Glu Ile Ile Ser Asn Ile Arg Asp Ser Val Ile Asn Leu Ser  
 65 70 75 80  
 Glu Ser Val Glu Asp Gly Pro Arg Gly Ser Pro Gly Asn Ala Ser Gln  
 85 90 95  
 Gly Ser Ile His Leu His Ser Pro Gln Leu Ala Leu Gln Ala Asp Pro  
 100 105 110  
 Arg Asp Cys Leu Phe Ala Ser Gln Ser Gly Ser Gln Pro Arg Asp Val  
 115 120 125  
 Gln Met Leu Asp Val Tyr Asp Leu Ile Pro Phe Asp Asn Pro Asp Gly  
 130 135 140  
 Gly Val Trp Lys Gln Gly Phe Asp Ile Lys Tyr Glu Ala Asp Glu Trp  
 145 150 155 160  
 Asp His Glu Pro Leu Gln Val Phe Val Val Pro His Ser His Asn Asp  
 165 170 175  
 Pro Gly Trp Leu Lys Thr Phe Asn Asp Tyr Phe Arg Asp Lys Thr Gln  
 180 185 190  
 Tyr Ile Phe Asn Asn Met Val Leu Lys Leu Lys Glu Asp Ser Ser Arg  
 195 200 205  
 Lys Phe Met Trp Ser Glu Ile Ser Tyr Leu Ala Lys Trp Trp Asp Ile  
 210 215 220  
 Ile Asp Ile Pro Lys Lys Glu Ala Val Lys Ser Leu Leu Gln Asn Gly  
 225 230 235 240  
 Gln Leu Glu Ile Val Thr Gly Gly Trp Val Met Pro Asp Glu Ala Thr  
 245 250 255  
 Pro His Tyr Phe Ala Leu Ile Asp Gln Leu Ile Glu Gly His Gln Trp  
 260 265 270  
 Leu Glu Lys Asn Leu Gly Val Lys Pro Arg Ser Gly Trp Ala Ile Asp  
 275 280 285  
 Pro Phe Gly His Ser Pro Thr Met Ala Tyr Leu Leu Lys Arg Ala Gly  
 290 295 300  
 Phe Ser His Met Leu Ile Gln Arg Val His Tyr Ala Ile Lys Lys His  
 305 310 315 320  
 Phe Ser Leu His Lys Thr Leu Glu Phe Phe Trp Arg Gln Asn Trp Asp  
 325 330 335  
 Leu Gly Ser Ala Thr Asp Ile Leu Cys His Met Met Pro Phe Tyr Ser  
 340 345 350

Tyr Asp Ile Pro His Thr Cys Gly Pro Asp Pro Lys Ile Cys Cys Gln  
 355 360 365  
 Phe Asp Phe Lys Arg Leu Pro Gly Gly Arg Tyr Gly Cys Pro Trp Gly  
 370 375 380  
 Val Pro Pro Glu Ala Ile Ser Pro Gly Asn Val Gln Ser Arg Ala Gln  
 385 390 395 400  
 Met Leu Leu Asp Gln Tyr Arg Lys Lys Ser Lys Leu Phe Arg Thr Lys  
 405 410 415  
 Val Leu Leu Ala Pro Leu Gly Asp Asp Phe Arg Phe Ser Glu Tyr Thr  
 420 425 430  
 Glu Trp Asp Leu Gln Cys Arg Asn Tyr Glu Gln Leu Phe Ser Tyr Met  
 435 440 445  
 Asn Ser Gln Pro His Leu Lys Val Lys Ile Gln Phe Gly Thr Leu Ser  
 450 455 460  
 Asp Tyr Phe Asp Ala Leu Glu Lys Ala Val Ala Ala Glu Lys Lys Ser  
 465 470 475 480  
 Ser Gln Ser Val Phe Pro Ala Leu Ser Gly Asp Phe Phe Thr Tyr Ala  
 485 490 495  
 Asp Arg Asp Asp His Tyr Trp Ser Gly Tyr Phe Thr Ser Arg Pro Phe  
 500 505 510  
 Tyr Lys Arg Met Asp Arg Ile Met Glu Ser Arg Ile Arg Ala Ala Glu  
 515 520 525  
 Ile Leu Tyr Gln Leu Ala Leu Lys Gln Ala Gln Lys Tyr Lys Ile Asn  
 530 535 540  
 Lys Phe Leu Ser Ser Pro His Tyr Thr Thr Leu Thr Glu Ala Arg Arg  
 545 550 555 560  
 Asn Leu Gly Leu Phe Gln His His Asp Ala Ile Thr Gly Thr Ala Lys  
 565 570 575  
 Asp Trp Val Val Val Asp Tyr Gly Thr Arg Leu Phe Gln Ser Leu Asn  
 580 585 590  
 Ser Leu Glu Lys Ile Ile Gly Asp Ser Ala Phe Leu Leu Ile Leu Lys  
 595 600 605  
 Asp Lys Lys Leu Tyr Gln Ser Asp Pro Ser Lys Ala Phe Leu Glu Met  
 610 615 620  
 Asp Thr Lys Gln Ser Ser Gln Asp Ser Leu Pro Gln Lys Ile Ile Ile  
 625 630 635 640

Gln Leu Ser Ala Gln Glu Pro Arg Tyr Leu Val Val Tyr Asn Pro Phe  
 645 650 655  
 Glu Gln Glu Arg His Ser Val Val Ser Ile Arg Val Asn Ser Ala Thr  
 660 665 670  
 Gly Lys Val Leu Ser Asp Ser Gly Lys Pro Val Glu Val Gln Val Ser  
 675 680 685  
 Ala Val Trp Asn Asp Met Arg Thr Ile Ser Gln Ala Ala Tyr Glu Val  
 690 695 700  
 Ser Phe Leu Ala His Ile Pro Pro Leu Gly Leu Lys Val Phe Lys Ile  
 705 710 715 720  
 Leu Glu Ser Gln Ser Ser Ser Ser His Leu Ala Asp Tyr Val Leu Tyr  
 725 730 735  
 Asn Asn Asp Gly Leu Ala Glu Asn Gly Ile Phe His Val Lys Asn Met  
 740 745 750  
 Val Asp Ala Gly Asp Ala Ile Thr Ile Glu Asn Pro Phe Leu Ala Ile  
 755 760 765  
 Trp Phe Asp Arg Ser Gly Leu Met Glu Lys Val Arg Arg Lys Glu Asp  
 770 775 780  
 Ser Arg Gln His Glu Leu Lys Val Gln Phe Leu Trp Tyr Gly Thr Thr  
 785 790 795 800  
 Asn Lys Arg Asp Lys Ser Gly Ala Tyr Leu Phe Leu Pro Asp Gly Gln  
 805 810 815  
 Gly Gln Pro Tyr Val Ser Leu Arg Pro Pro Phe Val Arg Val Thr Arg  
 820 825 830  
 Gly Arg Ile Tyr Ser Asp Val Thr Cys Phe Leu Glu His Val Thr His  
 835 840 845  
 Lys Val Arg Leu Tyr Asn Ile Gln Gly Ile Glu Gly Gln Ser Met Glu  
 850 855 860  
 Val Ser Asn Ile Val Asn Ile Arg Asn Val His Asn Arg Glu Ile Val  
 865 870 875 880  
 Met Arg Ile Ser Ser Lys Ile Asn Asn Gln Asn Arg Tyr Tyr Thr Asp  
 885 890 895  
 Leu Asn Gly Tyr Gln Ile Gln Pro Arg Arg Thr Met Ser Lys Leu Pro  
 900 905 910  
 Leu Gln Ala Asn Val Tyr Pro Met Cys Thr Met Ala Tyr Ile Gln Asp  
 915 920 925

Ala Glu His Arg Leu Thr Leu Leu Ser Ala Gln Ser Leu Gly Ala Ser  
 930 935 940  
 Ser Met Ala Ser Gly Gln Ile Glu Val Phe Met Asp Arg Arg Leu Met  
 945 950 955 960  
 Gln Asp Asp Asn Arg Gly Leu Gly Gln Gly Val His Asp Asn Lys Ile  
 965 970 975  
 Thr Ala Asn Leu Phe Arg Ile Leu Leu Glu Lys Arg Ser Ala Val Asn  
 980 985 990  
 Met Glu Glu Glu Lys Lys Ser Pro Val Ser Tyr Pro Ser Leu Leu Ser  
 995 1000 1005  
 His Met Thr Ser Ser Phe Leu Asn His Pro Phe Leu Pro Met Val Leu  
 1010 1015 1020  
 Ser Gly Gln Leu Pro Ser Pro Ala Phe Glu Leu Leu Ser Glu Phe Pro  
 1025 1030 1035 1040  
 Leu Leu Gln Ser Ser Leu Pro Cys Asp Ile His Leu Val Asn Leu Arg  
 1045 1050 1055  
 Thr Ile Gln Ser Lys Met Gly Lys Gly Tyr Ser Asp Glu Ala Ala Leu  
 1060 1065 1070  
 Ile Leu His Arg Lys Gly Phe Asp Cys Gln Phe Ser Ser Arg Gly Ile  
 1075 1080 1085  
 Gly Leu Pro Cys Ser Thr Thr Gln Gly Lys Met Ser Val Leu Lys Leu  
 1090 1095 1100  
 Phe Asn Lys Phe Ala Val Glu Ser Leu Val Pro Ser Ser Leu Ser Leu  
 1105 1110 1115 1120  
 Met His Ser Pro Pro Asp Ala Gln Asn Met Ser Glu Val Ser Leu Ser  
 1125 1130 1135  
 Pro Met Glu Ile Ser Thr Phe Arg Ile Arg Leu Arg Trp Thr  
 1140 1145 1150

<210> 99  
 <211> 1139  
 <212> PRT  
 <213> Homo sapiens

<400> 99  
 Met Lys Leu Lys Lys Gln Val Thr Val Cys Gly Ala Ala Ile Phe Cys  
 1 5 10 15

Val Ala Val Phe Ser Leu Tyr Leu Met Leu Asp Arg Val Gln His Asp  
                   20                  25                  30  
 Pro Thr Arg His Gln Asn Gly Gly Asn Phe Pro Arg Ser Gln Ile Ser  
                   35                  40                  45  
 Val Leu Gln Asn Arg Ile Glu Gln Leu Glu Gln Leu Leu Glu Glu Asn  
                   50                  55                  60  
 His Glu Ile Ile Ser His Ile Lys Asp Ser Val Leu Glu Leu Thr Ala  
                   65                  70                  75                  80  
 Asn Ala Glu Gly Pro Pro Ala Met Leu Pro Tyr Tyr Thr Val Asn Gly  
                   85                  90                  95  
 Ser Trp Val Val Pro Pro Glu Pro Arg Pro Ser Phe Phe Ser Ile Ser  
                   100                  105                  110  
 Pro Gln Asp Cys Gln Phe Ala Leu Gly Gly Arg Gly Gln Lys Pro Glu  
                   115                  120                  125  
 Leu Gln Met Leu Thr Val Ser Glu Glu Leu Pro Phe Asp Asn Val Asp  
                   130                  135                  140  
 Gly Gly Val Trp Arg Gln Gly Phe Asp Ile Ser Tyr Asp Pro His Asp  
                   145                  150                  155                  160  
 Trp Asp Ala Glu Asp Leu Gln Val Phe Val Val Pro His Ser His Asn  
                   165                  170                  175  
 Asp Pro Gly Trp Ile Lys Thr Phe Asp Lys Tyr Tyr Thr Glu Gln Thr  
                   180                  185                  190  
 Gln His Ile Leu Asn Ser Met Val Ser Lys Leu Gln Glu Asp Pro Arg  
                   195                  200                  205  
 Arg Arg Phe Leu Trp Ala Glu Val Ser Phe Phe Ala Lys Trp Trp Asp  
                   210                  215                  220  
 Asn Ile Asn Val Gln Lys Arg Ala Ala Val Arg Arg Leu Val Gly Asn  
                   225                  230                  235                  240  
 Gly Gln Leu Glu Ile Ala Thr Gly Gly Trp Val Met Pro Asp Glu Ala  
                   245                  250                  255  
 Asn Ser His Tyr Phe Ala Leu Ile Asp Gln Leu Ile Glu Gly His Gln  
                   260                  265                  270  
 Trp Leu Glu Arg Asn Leu Gly Ala Thr Pro Arg Ser Gly Trp Ala Val  
                   275                  280                  285  
 Asp Pro Phe Gly Tyr Ser Ser Thr Met Pro Tyr Leu Leu Arg Arg Ala  
                   290                  295                  300

Asn Leu Thr Ser Met Leu Ile Gln Arg Val His Tyr Ala Ile Lys Lys  
 305 310 315 320  
 His Phe Ala Ala Thr His Ser Leu Glu Phe Met Trp Arg Gln Thr Trp  
 325 330 335  
 Asp Ser Asp Ser Ser Thr Asp Ile Phe Cys His Met Met Pro Phe Tyr  
 340 345 350  
 Ser Tyr Asp Val Pro His Thr Cys Gly Pro Asp Pro Lys Ile Cys Cys  
 355 360 365  
 Gln Phe Asp Phe Lys Arg Leu Pro Gly Gly Arg Ile Asn Cys Pro Trp  
 370 375 380  
 Lys Val Pro Pro Arg Ala Ile Thr Glu Ala Asn Val Ala Glu Arg Ala  
 385 390 395 400  
 Ala Leu Leu Leu Asp Gln Tyr Arg Lys Lys Ser Gln Leu Phe Arg Ser  
 405 410 415  
 Asn Val Leu Leu Val Pro Leu Gly Asp Asp Phe Arg Tyr Asp Lys Pro  
 420 425 430  
 Gln Glu Trp Asp Ala Gln Phe Phe Asn Tyr Gln Arg Leu Phe Asp Phe  
 435 440 445  
 Phe Asn Ser Arg Pro Asn Leu His Val Gln Ala Gln Phe Gly Thr Leu  
 450 455 460  
 Ser Asp Tyr Phe Asp Ala Leu Tyr Lys Arg Thr Gly Val Glu Pro Gly  
 465 470 475 480  
 Ala Arg Pro Pro Gly Phe Pro Val Leu Ser Gly Asp Phe Phe Ser Tyr  
 485 490 495  
 Ala Asp Arg Glu Asp His Tyr Trp Thr Gly Tyr Tyr Thr Ser Arg Pro  
 500 505 510  
 Phe Tyr Lys Ser Leu Asp Arg Val Leu Glu Ala His Leu Arg Gly Ala  
 515 520 525  
 Glu Val Leu Tyr Ser Leu Ala Ala Ala His Ala Arg Arg Ser Gly Leu  
 530 535 540  
 Ala Gly Arg Tyr Pro Leu Ser Asp Phe Thr Leu Leu Thr Glu Ala Arg  
 545 550 555 560  
 Arg Thr Leu Gly Leu Phe Gln His His Asp Ala Ile Thr Gly Thr Ala  
 565 570 575  
 Lys Glu Ala Val Val Val Asp Tyr Gly Val Arg Leu Leu Arg Ser Leu  
 580 585 590

Val Asn Leu Lys Gln Val Ile Ile His Ala Ala His Tyr Leu Val Leu  
 595 600 605  
 Gly Asp Lys Glu Thr Tyr His Phe Asp Pro Glu Ala Pro Phe Leu Gln  
 610 615 620  
 Val Asp Asp Thr Arg Leu Ser His Asp Ala Leu Pro Glu Arg Thr Val  
 625 630 635 640  
 Ile Gln Leu Asp Ser Ser Pro Arg Phe Val Val Leu Phe Asn Pro Leu  
 645 650 655  
 Glu Gln Glu Arg Phe Ser Met Val Ser Leu Leu Val Asn Ser Pro Arg  
 660 665 670  
 Val Arg Val Leu Ser Glu Glu Gly Gln Pro Leu Ala Val Gln Ile Ser  
 675 680 685  
 Ala His Trp Ser Ser Ala Thr Glu Ala Val Pro Asp Val Tyr Gln Val  
 690 695 700  
 Ser Val Pro Val Arg Leu Pro Ala Leu Gly Leu Gly Val Leu Gln Leu  
 705 710 715 720  
 Gln Leu Gly Leu Asp Gly His Arg Thr Leu Pro Ser Ser Val Arg Ile  
 725 730 735  
 Tyr Leu His Gly Arg Gln Leu Ser Val Ser Arg His Glu Ala Phe Pro  
 740 745 750  
 Leu Arg Val Ile Asp Ser Gly Thr Ser Asp Phe Ala Leu Ser Asn Arg  
 755 760 765  
 Tyr Met Gln Val Trp Phe Ser Gly Leu Thr Gly Leu Leu Lys Ser Ile  
 770 775 780  
 Arg Arg Val Asp Glu Glu His Glu Gln Gln Val Asp Met Gln Val Leu  
 785 790 795 800  
 Val Tyr Gly Thr Arg Thr Ser Lys Asp Lys Ser Gly Ala Tyr Leu Phe  
 805 810 815  
 Leu Pro Asp Gly Glu Ala Ser Pro Thr Ser Pro Arg Ser Pro Pro Cys  
 820 825 830  
 Cys Val Ser Leu Lys Ala Leu Ser Ser Gln Arg Trp Leu Arg Thr Met  
 835 840 845  
 Ser Thr Phe Thr Arg Arg Ser Gly Phe Thr Ile Cys Gln Gly Trp Arg  
 850 855 860  
 Gly Cys Leu Trp Thr Tyr His Pro Trp Trp Thr Ser Gly Thr Thr Ser  
 865 870 875 880



Thr Arg Ser Trp Pro Cys Thr Ser Ile Gln Thr Ser Thr Ala Arg Val  
 885 890 895  
 Gln Pro Arg Arg Tyr Leu Lys Lys Leu Pro Leu Gln Ala Asn Phe Tyr  
 900 905 910  
 Pro Met Pro Val Met Ala Tyr Ile Gln Asp Ala Gln Lys Arg Leu Thr  
 915 920 925  
 Leu His Thr Ala Gln Ala Leu Gly Val Ser Ser Leu Lys Asp Gly Gln  
 930 935 940  
 Leu Glu Val Ile Leu Asp Arg Arg Leu Met Gln Asp Asp Asn Arg Gly  
 945 950 955 960  
 Leu Gly Gln Gly Leu Lys Asp Asn Lys Arg Thr Cys Asn Arg Phe Arg  
 965 970 975  
 Leu Leu Leu Glu Arg Arg Thr Val Gly Ser Glu Val Gln Asp Ser His  
 980 985 990  
 Ser Thr Ser Tyr Pro Ser Leu Leu Ser His Leu Thr Ser Met Tyr Leu  
 995 1000 1005  
 Asn Ala Pro Ala Leu Ala Leu Pro Val Ala Arg Met Gln Leu Pro Gly  
 1010 1015 1020  
 Pro Gly Leu Arg Ser Phe His Pro Leu Ala Ser Ser Leu Pro Cys Asp  
 1025 1030 1035 1040  
 Phe His Leu Leu Asn Leu Arg Thr Leu Gln Ala Glu Glu Asp Thr Leu  
 1045 1050 1055  
 Pro Ser Ala Glu Thr Ala Leu Ile Leu His Arg Lys Gly Phe Asp Cys  
 1060 1065 1070  
 Gly Leu Glu Ala Lys Asn Leu Gly Phe Asn Cys Thr Thr Ser Gln Gly  
 1075 1080 1085  
 Lys Val Ala Leu Gly Ser Leu Phe His Gly Leu Asp Val Val Phe Leu  
 1090 1095 1100  
 Gln Pro Thr Ser Leu Thr Leu Leu Tyr Pro Leu Ala Ser Pro Ser Asn  
 1105 1110 1115 1120  
 Ser Thr Asp Val Tyr Leu Glu Pro Met Glu Ile Ala Thr Phe Arg Leu  
 1125 1130 1135  
 Arg Leu Gly

&lt;210&gt; 100

&lt;211&gt; 1130

&lt;212&gt; PRT

<213> *Spodoptera frugiperda*

&lt;400&gt; 100

Met Arg Thr Arg Val Leu Arg Cys Arg Pro Phe Ser Thr Arg Ile Leu  
 1 5 10 15

Leu Leu Leu Leu Phe Val Leu Ala Phe Gly Val Tyr Cys Tyr Phe Tyr  
 20 25 30

Asn Ala Ser Pro Gln Asn Tyr Asn Lys Pro Arg Ile Ser Tyr Pro Ala  
 35 40 45

Ser Met Glu His Phe Lys Ser Ser Leu Thr His Thr Val Lys Ser Arg  
 50 55 60

Asp Glu Pro Thr Pro Asp Gln Cys Pro Ala Leu Lys Glu Ser Glu Ala  
 65 70 75 80

Asp Ile Asp Thr Val Ala Ile Tyr Pro Thr Phe Asp Phe Gln Pro Ser  
 85 90 95

Trp Leu Arg Thr Lys Glu Phe Trp Asp Lys Ser Phe Glu Asp Arg Tyr  
 100 105 110

Glu Arg Ile His Asn Asp Thr Thr Arg Pro Arg Leu Lys Val Ile Val  
 115 120 125

Val Pro His Ser His Asn Asp Pro Gly Trp Leu Lys Thr Phe Glu Gln  
 130 135 140

Tyr Phe Glu Trp Lys Thr Lys Asn Ile Ile Asn Asn Ile Val Asn Lys  
 145 150 155 160

Leu His Gln Tyr Pro Asn Met Thr Phe Ile Trp Thr Glu Ile Ser Phe  
 165 170 175

Leu Asn Ala Trp Trp Glu Arg Ser His Pro Val Lys Gln Lys Ala Leu  
 180 185 190

Lys Lys Leu Ile Lys Glu Gly Arg Leu Glu Ile Thr Thr Gly Gly Trp  
 195 200 205

Val Met Pro Asp Glu Ala Cys Thr His Ile Tyr Ala Leu Ile Asp Gln  
 210 215 220

Phe Ile Glu Gly His His Trp Val Lys Thr Asn Leu Gly Val Ile Pro  
 225 230 235 240

Lys Thr Gly Trp Ser Ile Asp Pro Phe Gly His Gly Ala Thr Val Pro  
 245 250 255

Tyr Leu Leu Asp Gln Ser Gly Leu Glu Gly Thr Ile Ile Gln Arg Ile  
 260 265 270  
 His Tyr Ala Trp Lys Gln Trp Leu Ala Glu Arg Gln Ile Glu Glu Phe  
 275 280 285  
 Tyr Trp Leu Ala Ser Trp Ala Thr Thr Lys Pro Ser Met Ile Val His  
 290 295 300  
 Asn Gln Pro Phe Asp Ile Tyr Ser Ile Lys Ser Thr Cys Gly Pro His  
 305 310 315 320  
 Pro Ser Ile Cys Leu Ser Phe Asp Phe Arg Lys Ile Pro Gly Glu Tyr  
 325 330 335  
 Ser Glu Tyr Thr Ala Lys His Glu Asp Ile Thr Glu His Asn Leu His  
 340 345 350  
 Ser Lys Ala Lys Thr Leu Ile Glu Glu Tyr Asp Arg Ile Gly Ser Leu  
 355 360 365  
 Thr Pro His Asn Val Val Leu Val Pro Leu Gly Asp Asp Phe Arg Tyr  
 370 375 380  
 Glu Tyr Ser Val Glu Phe Asp Ala Gln Tyr Val Asn Tyr Met Lys Met  
 385 390 395 400  
 Phe Asn Tyr Ile Asn Ala His Lys Glu Ile Phe Asn Ala Asp Val Gln  
 405 410 415  
 Phe Gly Thr Pro Leu Asp Tyr Phe Asn Ala Met Lys Glu Arg His Gln  
 420 425 430  
 Asn Ile Pro Ser Leu Lys Gly Asp Phe Phe Val Tyr Ser Asp Ile Phe  
 435 440 445  
 Ser Glu Gly Lys Pro Ala Tyr Trp Ser Gly Tyr Tyr Thr Thr Arg Pro  
 450 455 460  
 Tyr Gln Lys Ile Leu Ala Arg Gln Phe Glu His Gln Leu Arg Ser Ala  
 465 470 475 480  
 Glu Ile Leu Phe Thr Leu Val Ser Asn Tyr Ile Arg Gln Met Gly Arg  
 485 490 495  
 Gln Gly Glu Phe Gly Ala Ser Glu Lys Lys Leu Glu Lys Ser Tyr Glu  
 500 505 510  
 Gln Leu Ile Tyr Ala Arg Arg Asn Leu Gly Leu Phe Gln His His Asp  
 515 520 525  
 Ala Ile Thr Gly Thr Ser Lys Ser Ser Val Met Gln Asp Tyr Gly Thr  
 530 535 540

Lys Leu Phe Thr Ser Leu Tyr His Cys Ile Arg Leu Gln Glu Ala Ala  
 545 550 555 560  
 Leu Thr Thr Ile Met Leu Pro Asp Gln Ser Leu His Ser Gln Ser Ile  
 565 570 575  
 Ile Gln Ser Glu Val Glu Trp Glu Thr Tyr Gly Lys Pro Pro Lys Lys  
 580 585 590  
 Leu Gln Val Ser Phe Ile Asp Lys Lys Lys Val Ile Leu Phe Asn Pro  
 595 600 605  
 Leu Ala Glu Thr Arg Thr Glu Val Val Thr Val Arg Ser Asn Thr Ser  
 610 615 620  
 Asn Ile Arg Val Tyr Asp Thr His Lys Arg Lys His Val Leu Tyr Gln  
 625 630 635 640  
 Ile Met Pro Ser Ile Thr Ile Gln Asp Asn Gly Lys Ser Ile Val Ser  
 645 650 655  
 Asp Thr Thr Phe Asp Ile Met Phe Val Ala Thr Ile Pro Pro Leu Thr  
 660 665 670  
 Ser Ile Ser Tyr Lys Leu Gln Glu His Thr Asn Thr Ser His His Cys  
 675 680 685  
 Val Ile Phe Cys Asn Asn Cys Glu Gln Tyr Gln Lys Ser Asn Val Phe  
 690 695 700  
 Gln Ile Lys Lys Met Met Pro Gly Asp Ile Gln Leu Glu Asn Ala Val  
 705 710 715 720  
 Leu Lys Leu Leu Val Asn Arg Asn Thr Gly Phe Leu Arg Gln Val Tyr  
 725 730 735  
 Arg Lys Asp Ile Arg Lys Arg Thr Val Val Asp Val Gln Phe Gly Ala  
 740 745 750  
 Tyr Gln Ser Ala Gln Arg His Ser Gly Ala Tyr Leu Phe Met Pro His  
 755 760 765  
 Tyr Asp Ser Pro Glu Lys Asn Val Leu His Pro Tyr Thr Asn Gln Asn  
 770 775 780  
 Asn Met Gln Asp Asp Asn Ile Ile Ile Val Ser Gly Pro Ile Ser Thr  
 785 790 795 800  
 Glu Ile Thr Thr Met Tyr Leu Pro Phe Leu Val His Thr Ile Arg Ile  
 805 810 815  
 Tyr Asn Val Pro Asp Pro Val Leu Ser Arg Ala Ile Leu Leu Glu Thr  
 820 825 830

Asp Val Asp Phe Glu Ala Pro Pro Lys Asn Arg Glu Thr Glu Leu Phe	835	840	845
Met Arg Leu Gln Thr Asp Ile Gln Asn Gly Asp Ile Pro Glu Phe Tyr	850	855	860
Thr Asp Gln Asn Gly Phe Gln Tyr Gln Lys Arg Val Lys Val Asn Lys	865	870	875
Leu Gly Ile Glu Ala Asn Tyr Tyr Pro Ile Thr Thr Met Ala Cys Leu	885	890	895
Gln Asp Glu Glu Thr Arg Leu Thr Leu Leu Thr Asn His Ala Gln Gly	900	905	910
Ala Ala Ala Tyr Glu Pro Gly Arg Leu Glu Val Met Leu Asp Arg Arg	915	920	925
Thr Leu Tyr Asp Asp Phe Arg Gly Ile Gly Glu Gly Val Val Asp Asn	930	935	940
Lys Pro Thr Thr Phe Gln Asn Trp Ile Leu Ile Glu Ser Met Pro Gly	945	950	955
Val Thr Arg Ala Lys Arg Asp Thr Ser Glu Pro Gly Phe Lys Phe Val	965	970	975
Asn Glu Arg Arg Phe Gly Pro Gly Gln Lys Glu Ser Pro Tyr Gln Val	980	985	990
Pro Ser Gln Thr Ala Asp Tyr Leu Ser Arg Met Phe Asn Tyr Pro Val	995	1000	1005
Asn Val Tyr Leu Val Asp Thr Ser Glu Val Gly Glu Ile Glu Val Lys	1010	1015	1020
Pro Tyr Gln Ser Phe Leu Gln Ser Phe Pro Pro Gly Ile His Leu Val	1025	1030	1035
Thr Leu Arg Thr Ile Thr Asp Asp Val Leu Glu Leu Phe Pro Ser Asn	1045	1050	1055
Glu Ser Tyr Met Val Leu His Arg Pro Gly Tyr Ser Cys Ala Val Gly	1060	1065	1070
Glu Lys Pro Val Ala Lys Ser Pro Lys Phe Ser Ser Lys Thr Arg Phe	1075	1080	1085
Asn Gly Leu Asn Ile Gln Asn Ile Thr Ala Val Ser Leu Thr Gly Leu	1090	1095	1100
Lys Ser Leu Arg Pro Leu Thr Gly Leu Ser Asp Ile His Leu Asn Ala	1105	1110	1115
			1120

Met Glu Val Lys Thr Tyr Lys Ile Arg Phe  
                   1125                  1130

<210> 101  
 <211> 1010  
 <212> PRT  
 <213> Homo sapiens

<400> 101  
 Met Gly Tyr Ala Arg Ala Ser Gly Val Cys Ala Arg Gly Cys Leu Asp  
   1                  5                  10                  15  
 Ser Ala Gly Pro Trp Thr Met Ser Arg Ala Leu Arg Pro Pro Leu Pro  
                   20                  25                  30  
 Pro Leu Cys Phe Phe Leu Leu Leu Leu Ala Ala Ala Gly Ala Arg Ala  
                   35                  40                  45  
 Gly Gly Tyr Glu Thr Cys Pro Thr Val Gln Pro Asn Met Leu Asn Val  
                   50                  55                  60  
 His Leu Leu Pro His Thr His Asp Asp Val Gly Trp Leu Lys Thr Val  
   65                  70                  75                  80  
 Asp Gln Tyr Phe Tyr Gly Ile Lys Asn Asp Ile Gln His Ala Gly Val  
                   85                  90                  95  
 Gln Tyr Ile Leu Asp Ser Val Ile Ser Ala Leu Leu Ala Asp Pro Thr  
                   100                  105                  110  
 Arg Arg Phe Ile Tyr Val Glu Ile Ala Phe Phe Ser Arg Trp Trp His  
                   115                  120                  125  
 Gln Gln Thr Asn Ala Thr Gln Glu Val Val Arg Asp Leu Val Arg Gln  
   130                  135                  140  
 Gly Arg Leu Glu Phe Ala Asn Gly Gly Trp Val Met Asn Asp Glu Ala  
   145                  150                  155                  160  
 Ala Thr His Tyr Gly Ala Ile Val Asp Gln Met Thr Leu Gly Leu Arg  
                   165                  170                  175  
 Phe Leu Glu Asp Thr Phe Gly Asn Asp Gly Arg Pro Arg Val Ala Trp  
                   180                  185                  190  
 His Ile Asp Pro Phe Gly His Ser Arg Glu Gln Ala Ser Leu Phe Ala  
                   195                  200                  205  
 Gln Met Gly Phe Asp Gly Phe Phe Phe Gly Arg Leu Asp Tyr Gln Asp  
   210                  215                  220

Lys Trp Val Arg Met Gln Lys Leu Glu Met Glu Gln Val Trp Arg Ala  
 225 230 235 240  
 Ser Thr Ser Leu Lys Pro Pro Thr Ala Asp Leu Phe Thr Gly Val Leu  
 245 250 255  
 Pro Asn Gly Tyr Asn Pro Pro Arg Asn Leu Cys Trp Asp Val Leu Cys  
 260 265 270  
 Val Asp Gln Pro Leu Val Glu Asp Pro Arg Ser Pro Glu Tyr Asn Ala  
 275 280 285  
 Lys Glu Leu Val Asp Tyr Phe Leu Asn Val Ala Thr Ala Gln Gly Arg  
 290 295 300  
 Tyr Tyr Arg Thr Asn His Thr Val Met Thr Met Gly Ser Asp Phe Gln  
 305 310 315 320  
 Tyr Glu Asn Ala Asn Met Trp Phe Lys Asn Leu Asp Lys Leu Ile Arg  
 325 330 335  
 Leu Val Asn Ala Gln Gln Ala Lys Gly Ser Ser Val His Val Leu Tyr  
 340 345 350  
 Ser Thr Pro Ala Cys Tyr Leu Trp Glu Leu Asn Lys Ala Asn Leu Thr  
 355 360 365  
 Trp Ser Val Lys His Asp Asp Phe Phe Pro Tyr Ala Asp Gly Pro His  
 370 375 380  
 Gln Phe Trp Thr Gly Tyr Phe Ser Ser Arg Pro Ala Leu Lys Arg Tyr  
 385 390 395 400  
 Glu Arg Leu Ser Tyr Asn Phe Leu Gln Val Cys Asn Gln Leu Glu Ala  
 405 410 415  
 Leu Val Gly Leu Ala Ala Asn Val Gly Pro Tyr Gly Ser Gly Asp Ser  
 420 425 430  
 Ala Pro Leu Asn Glu Ala Met Ala Val Leu Gln His His Asp Ala Val  
 435 440 445  
 Ser Gly Thr Ser Arg Gln His Val Ala Asn Asp Tyr Ala Arg Gln Leu  
 450 455 460  
 Ala Ala Gly Trp Gly Pro Cys Glu Val Leu Leu Ser Asn Ala Leu Ala  
 465 470 475 480  
 Arg Leu Arg Gly Phe Lys Asp His Phe Thr Phe Cys Gln Gln Leu Asn  
 485 490 495  
 Ile Ser Ile Cys Pro Leu Ser Gln Thr Ala Ala Arg Phe Gln Val Ile  
 500 505 510

Val Tyr Asn Pro Leu Gly Arg Lys Val Asn Trp Met Val Arg Leu Pro  
 515 520 525  
 Val Ser Glu Gly Val Phe Val Val Lys Asp Pro Asn Gly Arg Thr Val  
 530 535 540  
 Pro Ser Asp Val Val Ile Phe Pro Ser Ser Asp Ser Gln Ala His Pro  
 545 550 555 560  
 Pro Glu Leu Leu Phe Ser Ala Ser Leu Pro Ala Leu Gly Phe Ser Thr  
 565 570 575  
 Tyr Ser Val Ala Gln Val Pro Arg Trp Lys Pro Gln Ala Arg Ala Pro  
 580 585 590  
 Gln Pro Ile Pro Arg Arg Ser Trp Ser Pro Ala Leu Thr Ile Glu Asn  
 595 600 605  
 Glu His Ile Arg Ala Thr Phe Asp Pro Asp Thr Gly Leu Leu Met Glu  
 610 615 620  
 Ile Met Asn Met Asn Gln Gln Leu Leu Leu Pro Val Arg Gln Thr Phe  
 625 630 635 640  
 Phe Trp Tyr Asn Ala Ser Ile Gly Asp Asn Glu Ser Asp Gln Ala Ser  
 645 650 655  
 Gly Ala Tyr Ile Phe Arg Pro Asn Gln Gln Lys Pro Leu Pro Val Ser  
 660 665 670  
 Arg Trp Ala Gln Ile His Leu Val Lys Thr Pro Leu Val Gln Glu Val  
 675 680 685  
 His Gln Asn Phe Ser Ala Trp Cys Ser Gln Val Val Arg Leu Tyr Pro  
 690 695 700  
 Gly Gln Arg His Leu Glu Leu Glu Trp Ser Val Gly Pro Ile Pro Val  
 705 710 715 720  
 Gly Asp Thr Trp Gly Lys Glu Val Ile Ser Arg Phe Asp Thr Pro Leu  
 725 730 735  
 Glu Thr Lys Gly Arg Phe Tyr Thr Asp Ser Asn Gly Arg Glu Ile Leu  
 740 745 750  
 Glu Arg Arg Arg Asp Tyr Arg Pro Thr Trp Lys Leu Asn Gln Thr Glu  
 755 760 765  
 Pro Val Ala Gly Asn Tyr Tyr Pro Val Asn Thr Arg Ile Tyr Ile Thr  
 770 775 780  
 Asp Gly Asn Met Gln Leu Thr Val Leu Thr Asp Arg Ser Gln Gly Gly  
 785 790 795 800



Ser Ser Leu Arg Asp Gly Ser Leu Glu Leu Met Val His Arg Arg Leu  
                     805                    810                    815  
 Leu Lys Asp Asp Gly Arg Gly Val Ser Glu Pro Leu Met Glu Asn Gly  
                     820                    825                    830  
 Ser Gly Ala Trp Val Arg Gly Arg His Leu Val Leu Leu Asp Thr Ala  
                     835                    840                    845  
 Gln Ala Ala Ala Ala Gly His Arg Leu Leu Ala Glu Gln Glu Val Leu  
                     850                    855                    860  
 Ala Pro Gln Val Val Leu Ala Pro Gly Gly Gly Ala Ala Tyr Asn Leu  
                     865                    870                    875                    880  
 Gly Ala Pro Pro Arg Thr Gln Phe Ser Gly Leu Arg Arg Asp Leu Pro  
                     885                    890                    895  
 Pro Ser Val His Leu Leu Thr Leu Ala Ser Trp Gly Pro Glu Met Val  
                     900                    905                    910  
 Leu Leu Arg Leu Glu His Gln Phe Ala Val Gly Glu Asp Ser Gly Arg  
                     915                    920                    925  
 Asn Leu Ser Ala Pro Val Thr Leu Asn Leu Arg Asp Leu Phe Ser Thr  
                     930                    935                    940  
 Phe Thr Ile Thr Arg Leu Gln Glu Thr Thr Leu Val Ala Asn Gln Leu  
                     945                    950                    955                    960  
 Arg Glu Ala Ala Ser Arg Leu Lys Trp Thr Thr Asn Thr Gly Pro Thr  
                     965                    970                    975  
 Pro His Gln Thr Pro Tyr Gln Leu Asp Pro Ala Asn Ile Thr Leu Glu  
                     980                    985                    990  
 Pro Met Glu Ile Arg Thr Phe Leu Ala Ser Val Gln Trp Lys Glu Val  
                     995                    1000                    1005  
 Asp Gly  
                     1010

&lt;210&gt; 102

&lt;211&gt; 1062

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 102

Met Ala Ala Ala Pro Phe Leu Lys His Trp Arg Thr Thr Phe Glu Arg  
           1                    5                    10                    15

Val Glu Lys Phe Val Ser Pro Ile Tyr Phe Thr Asp Cys Asn Leu Arg  
                   20                  25                  30  
 Gly Arg Leu Phe Gly Ala Ser Cys Pro Val Ala Val Leu Ser Ser Phe  
                   35                  40                  45  
 Leu Thr Pro Glu Arg Leu Pro Tyr Gln Glu Ala Val Gln Arg Asp Phe  
                   50                  55                  60  
 Arg Pro Ala Gln Val Gly Asp Ser Phe Gly Pro Thr Trp Trp Thr Cys  
                   65                  70                  75                  80  
 Trp Phe Arg Val Glu Leu Thr Ile Pro Glu Ala Trp Val Gly Gln Glu  
                   85                  90                  95  
 Val His Leu Cys Trp Glu Ser Asp Gly Glu Gly Leu Val Trp Arg Asp  
                   100                  105                  110  
 Gly Glu Pro Val Gln Gly Leu Thr Lys Glu Gly Glu Lys Thr Ser Tyr  
                   115                  120                  125  
 Val Leu Thr Asp Arg Leu Gly Glu Arg Asp Pro Arg Ser Leu Thr Leu  
                   130                  135                  140  
 Tyr Val Glu Val Ala Cys Asn Gly Leu Leu Gly Ala Gly Lys Gly Ser  
                   145                  150                  155                  160  
 Met Ile Ala Ala Pro Asp Pro Glu Lys Ile Phe Gln Leu Ser Arg Ala  
                   165                  170                  175  
 Glu Leu Ala Val Phe His Arg Asp Val His Met Leu Leu Val Asp Leu  
                   180                  185                  190  
 Glu Leu Leu Leu Gly Ile Ala Lys Gly Leu Gly Lys Asp Asn Gln Arg  
                   195                  200                  205  
 Ser Phe Gln Ala Leu Tyr Thr Ala Asn Gln Met Val Asn Val Cys Asp  
                   210                  215                  220  
 Pro Ala Gln Pro Glu Thr Phe Pro Val Ala Gln Ala Leu Ala Ser Arg  
                   225                  230                  235                  240  
 Phe Phe Gly Gln His Gly Gly Glu Ser Gln His Thr Ile His Ala Thr  
                   245                  250                  255  
 Gly His Cys His Ile Asp Thr Ala Trp Leu Trp Pro Phe Lys Glu Thr  
                   260                  265                  270  
 Val Arg Lys Cys Ala Arg Ser Trp Val Thr Ala Leu Gln Leu Met Glu  
                   275                  280                  285  
 Arg Asn Pro Glu Phe Ile Phe Ala Cys Ser Gln Ala Gln Gln Leu Glu  
                   290                  295                  300

Trp Val Lys Ser Arg Tyr Pro Gly Leu Tyr Ser Arg Ile Gln Glu Phe  
 305 310 315 320  
 Ala Cys Arg Gly Gln Phe Val Pro Val Gly Gly Thr Trp Val Glu Met  
 325 330 335  
 Asp Gly Asn Leu Pro Ser Gly Glu Ala Met Val Arg Gln Phe Leu Gln  
 340 345 350  
 Gly Gln Asn Phe Phe Leu Gln Glu Phe Gly Lys Met Cys Ser Glu Phe  
 355 360 365  
 Trp Leu Pro Asp Thr Phe Gly Tyr Ser Ala Gln Leu Pro Gln Ile Met  
 370 375 380  
 His Gly Cys Gly Ile Arg Arg Phe Leu Thr Gln Lys Leu Ser Trp Asn  
 385 390 395 400  
 Leu Val Asn Ser Phe Pro His His Thr Phe Phe Trp Glu Gly Leu Asp  
 405 410 415  
 Gly Ser Arg Val Leu Val His Phe Pro Pro Gly Asp Ser Tyr Gly Met  
 420 425 430  
 Gln Gly Ser Val Glu Glu Val Leu Lys Thr Val Ala Asn Asn Arg Asp  
 435 440 445  
 Lys Gly Arg Ala Asn His Ser Ala Phe Leu Phe Gly Phe Gly Asp Gly  
 450 455 460  
 Gly Gly Gly Pro Thr Gln Thr Met Leu Asp Arg Leu Lys Arg Leu Ser  
 465 470 475 480  
 Asn Thr Asp Gly Leu Pro Arg Val Gln Leu Ser Ser Pro Arg Gln Leu  
 485 490 495  
 Phe Ser Ala Leu Glu Ser Asp Ser Glu Gln Leu Cys Thr Trp Val Gly  
 500 505 510  
 Glu Leu Phe Leu Glu Leu His Asn Gly Thr Tyr Thr Thr His Ala Gln  
 515 520 525  
 Ile Lys Lys Gly Asn Arg Glu Cys Glu Arg Ile Leu His Asp Val Glu  
 530 535 540  
 Leu Leu Ser Ser Leu Ala Leu Ala Arg Ser Ala Gln Phe Leu Tyr Pro  
 545 550 555 560  
 Ala Ala Gln Leu Gln His Leu Trp Arg Leu Leu Leu Leu Asn Gln Phe  
 565 570 575  
 His Asp Val Val Thr Gly Ser Cys Ile Gln Met Val Ala Glu Glu Ala  
 580 585 590

Met	Cys	His	Tyr	Glu	Asp	Ile	Arg	Ser	His	Gly	Asn	Thr	Leu	Leu	Ser	595	600	605
Ala	Ala	Ala	Ala	Ala	Leu	Cys	Ala	Gly	Glu	Pro	Gly	Pro	Glu	Gly	Leu	610	615	620
Leu	Ile	Val	Asn	Thr	Leu	Pro	Trp	Lys	Arg	Ile	Glu	Val	Met	Ala	Leu	625	630	635
Pro	Lys	Pro	Gly	Gly	Ala	His	Ser	Leu	Ala	Leu	Val	Thr	Val	Pro	Ser	645	650	655
Met	Gly	Tyr	Ala	Pro	Val	Pro	Pro	Pro	Thr	Ser	Leu	Gln	Pro	Leu	Leu	660	665	670
Pro	Gln	Gln	Pro	Val	Phe	Val	Val	Gln	Glu	Thr	Asp	Gly	Ser	Val	Thr	675	680	685
Leu	Asp	Asn	Gly	Ile	Ile	Arg	Val	Lys	Leu	Asp	Pro	Thr	Gly	Arg	Leu	690	695	700
Thr	Ser	Leu	Val	Leu	Val	Ala	Ser	Gly	Arg	Glu	Ala	Ile	Ala	Glu	Gly	705	710	715
Ala	Val	Gly	Asn	Gln	Phe	Val	Leu	Phe	Asp	Asp	Val	Pro	Leu	Tyr	Trp	725	730	735
Asp	Ala	Trp	Asp	Val	Met	Asp	Tyr	His	Leu	Glu	Thr	Arg	Lys	Pro	Val	740	745	750
Leu	Gly	Gln	Ala	Gly	Thr	Leu	Ala	Val	Gly	Thr	Glu	Gly	Gly	Leu	Arg	755	760	765
Gly	Ser	Ala	Trp	Phe	Leu	Leu	Gln	Ile	Ser	Pro	Asn	Ser	Arg	Leu	Ser	770	775	780
Gln	Glu	Val	Val	Leu	Asp	Val	Gly	Cys	Pro	Tyr	Val	Arg	Phe	His	Thr	785	790	795
Glu	Val	His	Trp	His	Glu	Ala	His	Lys	Phe	Leu	Lys	Val	Glu	Phe	Pro	805	810	815
Ala	Arg	Val	Arg	Ser	Ser	Gln	Ala	Thr	Tyr	Glu	Ile	Gln	Phe	Gly	His	820	825	830
Leu	Gln	Arg	Pro	Thr	His	Tyr	Asn	Thr	Ser	Trp	Asp	Trp	Ala	Arg	Phe	835	840	845
Glu	Val	Trp	Ala	His	Arg	Trp	Met	Asp	Leu	Ser	Glu	His	Gly	Phe	Gly	850	855	860
Leu	Ala	Leu	Leu	Asn	Asp	Cys	Lys	Tyr	Gly	Ala	Ser	Val	Arg	Gly	Ser	865	870	875

Ile	Leu	Ser	Leu	Ser	Leu	Leu	Arg	Ala	Pro	Lys	Ala	Pro	Asp	Ala	Thr
885								890				895			
Ala	Asp	Thr	Gly	Arg	His	Glu	Phe	Thr	Tyr	Ala	Leu	Met	Pro	His	Lys
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Gly	Ser	Phe	Gln	Asp	Ala	Gly	Val	Ile	Gln	Ala	Ala	Tyr	Ser	Leu	Asn
915								920				925			
Phe	Pro	Leu	Leu	Ala	Leu	Pro	Ala	Pro	Ser	Pro	Ala	Pro	Ala	Thr	Ser
930								935				940			
Trp	Ser	Ala	Phe	Ser	Val	Ser	Ser	Pro	Ala	Val	Val	Leu	Glu	Thr	Val
945								950				955			
Lys	Gln	Ala	Glu	Ser	Ser	Pro	Gln	Arg	Arg	Ser	Leu	Val	Leu	Arg	Leu
				965								975			
Tyr	Glu	Ala	His	Gly	Ser	His	Val	Asp	Cys	Trp	Leu	His	Leu	Ser	Leu
				980								985			
Pro	Val	Gln	Glu	Ala	Ile	Leu	Cys	Asp	Leu	Leu	Glu	Arg	Pro	Asp	Pro
995								1000				1005			
Ala	Gly	His	Leu	Thr	Ser	Gly	Gln	Pro	Pro	Glu	Ala	His	Leu	Phe	Ser
1010								1015				1020			
Leu	Pro	Ser	Ala	Val	Pro	Val	Ala	Arg	Ala	Ser	Ala	Ser	Ala	Thr	Leu
1025								1030				1035			
Ser	Pro	Trp	Gly	Trp	Gly	Phe	Val	Cys	Arg	Arg	Leu	Trp	Gly	Leu	Leu
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